BRITISH MUSEUM (NATURAL HISTORY)

INSECTS OF SAMOA

AND OTHER SAMOAN TERRESTRIAL ARTHROPODA

PART IV. COLEOPTERA

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CLAVICORNIA AND LAMELLICORNIA. By G. J. ARROW

WITH TWENTY-SEVEN TEXT-FIGURES

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INSECTS OF SAMOA
AND OTHER SAMOAN TERRESTRIAL ARTHROPODA

Although a monograph, or series of papers, dealing comprehensively with the land arthropod fauna of any group of islands in the South Pacific may be expected to yield valuable results, in connection with distribution, modification due to isolation, and other problems, no such work is at present in existence. In order in some measure to remedy this deficiency, and in view of benefits directly accruing to the National Collections, the Trustees of the British Museum have undertaken the publication of an account of the Insects and other Terrestrial Arthropoda collected in the Samoan Islands, in 1924-1925, by Messrs. P. A. Buxton and G. H. E. Hopkins, during the Expedition of the London School of Hygiene and Tropical Medicine to the South Pacific. Advantage has been taken of the opportunity thus afforded, to make the studies as complete as possible by including in them all Samoan material of the groups concerned in both the British Museum (Natural History) and (by courtesy of the authorities of that institution) the Bishop Museum, Honolulu.

It is not intended that contributors to the text shall be confined to the Museum Staff or to any one nation, but, so far as possible, the assistance of the leading authorities on all groups to be dealt with has been obtained.

The work will be divided into eight "Parts" (see p. 3 of wrapper), which will be subdivided into "Fascicles." Each of the latter, which will appear as ready in any order, will consist of one or more contributions. On the completion of the work it is intended to issue a general survey, summarising the whole and drawing from it such conclusions as may be warranted.

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INSECTS OF SAMOA

PART IV. FASC. 1

COLEOPTERA

CARABIDAE

BY H. E. ANDREWES

(With 9 Text-figures.)

IT is only during quite recent years that any Carabidae have been collected in the Samoan Islands. The earliest expedition seems to have been that of Dr. K. Rechinger, in 1905, an account of which appeared in *Denkschr. K. Akad. Wiss. Wien, Math.-Naturw. Kl.*, Bd. xci, 1915, a short paper on the Carabidae being contributed by Mr. E. Csiki; Rechinger's collection is now in the Vienna Museum, and Dr. K. Holdhaus has kindly sent it to me for examination. In 1912–13 collections were made by Dr. K. Friedrichs, and the results of his expedition are discussed in *Archiv. für Naturgeschichte*, Berlin, Bd. 88, A. 10, 1922. The Carabidae, however, were not dealt with at the time, and I am indebted to Dr. W. Horn for sending me this collection from the Deutsches Entomologisches Museum in Berlin. My friend Dr. Harold Swale spent some time in Samoa during the war, and, of the few examples taken by him, some are in the British Museum and some in my own collection. Of two specimens captured by Dr. F. W. O'Connor in 1921, one proves to belong to a new species; these specimens are in the British Museum, as is a solitary example taken in 1923 by Dr. J. S. Armstrong. I have also seen three specimens sent by the Bishop Museum in Honolulu. The collections formed in 1924–5 by Messrs. Buxton and Hopkins have added considerably to our knowledge, and of the five new species described below, of which all the types are in the British Museum, four were taken by them. It will be understood that where, in the following

pages, no names are given, the insects in question were collected by them. The figures in the text were drawn by Mr. D. E. Kimmins.

So far as our present knowledge extends, the Carabidae found in the Samoan Islands are few in species and, apparently, also in individuals. The species enumerated below total only fifteen, or, with the two undescribed ones referred to in a note at the end, seventeen. Of these fifteen only six, including the five new ones here described, are endemic in Samoa; a further four are spread widely over South-East Asia, three extend to the Malay region or at least to New Guinea, one occurs also in Queensland only, and one in New Caledonia only. Four of the species occur in Australia, and four (but not all the same four) in New Caledonia. Only one species is at all widely spread in Polynesia, and that—the only species common to Samoa and the Hawaiian Islands—has been recorded from Honolulu. One species is known from Christmas Island (Malay region).

A few Carabidae have been described from material from the Fiji Islands, and one or two from specimens from Tahiti; unfortunately I have not been able to see the types of the latter, but, judging from the descriptions, I do not think any of them have been met with as yet in Samoa. One Australian species is, however, found both in Samoa and Tahiti. Of the species described from Fijian examples, Dr. H. Gebien, of the Hamburg Museum, has been good enough to send me all the types (with one exception) for examination; all the species, apart from the *Endynomena*, prove to be different from those found in Samoa. It may be mentioned here that the genus *Colpodes*, to which all the five new species belong, contains an enormous number of species, and is represented in all the warmer regions of the globe.

Generally speaking, the fauna of Samoa, so far as the Carabidae are concerned, is widely different from that of the Hawaiian Islands, and appears also to have nothing in common with Fiji; this latter feature, however, may be due to the slight amount of collecting that has hitherto been done in that part of the world. On the other hand, there is an evident connection with Australia and New Caledonia, while several of the wide-ranging species of the Oriental region extend their habitat as far as Samoa.

The fifteen species of which I have examined specimens are as under:

BEMBIDIINI.

1. Tachys quadrillum Schaum.

Tachys quadrillum Schaum, *Berl. Ent. Zeitschr.*, Vol. iv, p. 201, 1860 ; Andrewes, Rev. Or. Spec. Gen. Tachys, *Ann. Mus. Civ. Gen.*, Vol. li, p. 372, 1925.
„ *pictipennis* Putzeys, *Ann. Mus. Civ. Gen.*, Vol. vii, p. 745, 1875 ; Bates, *Ann. Soc. Ent. Fr.* (6), Vol. ix, p. 274, 1889 ; Andrewes, *Trans. Ent. Soc. Lond.*, 1921, p. 178, 1921.
„ *spilotus* Bates, *Ann. Mag. Nat. Hist.* (5), Vol. xvii, p. 152, 1886.

Savaii : Fagamalo, xi.1925, 1 example.

Common throughout South-East Asia, including the Malay Archipelago as far as New Guinea. I have seen no examples from Australia, New Caledonia, or any other locality in Polynesia.

CHLAENIINI.

2. Chlaenius flaviguttatus Macleay var. guttatus Eschscholtz.

Chlaenius guttatus Eschscholtz, *Zool. Atl., Heft* 5, p. 26, Tab. xxv, fig. 8, 1833 ; Chaudoir, *Mon. des Chléniens, Ann. Mus. Civ. Gen.*, Vol. viii, p. 49, 1876.
„ *binotatus* var. *guttatus* Heller, *Deutsch. Ent. Zeitschr.*, 1916, p. 276, 1916.
Lissauchenius biguttatus Montrouzier, *Ann. Soc. Ent. Fr.* (3), Vol. viii, p. 237, 1860.

Upolu (Rechinger), Mulifanua (Swale), 2.v.1917.

Philippine Is., New Guinea, New Caledonia. The type form is found in Australia, but the variety does not seem to occur there.

3. Chlaenius samoensis Csiki.

Chlaenius samoensis Csiki, *Denkschr. K. Akad. Wiss. Wien, Math.-Naturw. Kl.*, Vol. xci, p. 163, 1915.

Upolu (Rechinger) : Apia, 5.ii.–27.vii.–xii.1924.

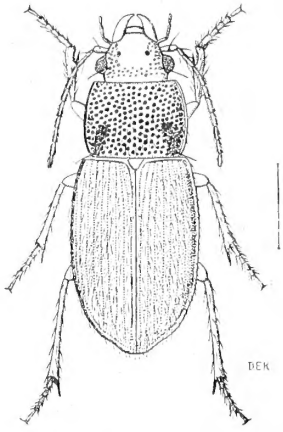
Known only at present from the island of Upolu. (Text-fig. 1.)

HARPALINI.

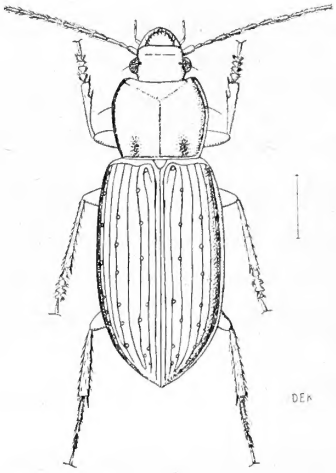
4. Gnathaphanus impressipennis Cast.

Harpalus impressipennis Castelnau, *Trans. Roy. Soc. Vict.*, Vol. viii, p. 136, 1868.
Gnathaphanus impressipennis Chaud., *Ann. Mus. Civ. Gen.*, Vol. xii, p. 510, 1878 ; Sloane, *Deutsch. Ent. Zeitschr.*, 1907, p. 468, 1907 ; id. *Proc. Linn. Soc. N.S. Wales*, Vol. xlv, p 320, 1920 ; Andrewes, *Ann Soc. Ent. Belg.*, Vol. lx, p. 107, 1920.
Dioryche upolensis Csiki, *Denkschr. K. Akad. Wiss. Wien, Math.-Naturw. Kl.*, Vol. xci, p. 163, 1915. [New syn.]

Upolu (Rechinger). "Samoa" (Swale), several examples, one of which flew to light in the evening. (Text-fig. 2.)



TEXT-FIG. 1.—*Chlaenius samoensis* Csiki.



TEXT-FIG. 2.—*Gnathaphanus impressipennis* Cast.

My records include the following localities: Kuala Lumpur in the Malay States, Singapore, Java, Sumatra, Sumbawa, New Guinea, Australia and New Caledonia.

5. Stenolophus dingo Cast.

Harpalus dingo Castelnau, *Trans. Roy. Soc. Vict.*, Vol. viii, p. 197, 1868.
Stenolophus dingo Sloane, *Proc. Linn. Soc. N.S. Wales*, Vol. xlv, p. 321, 1920.
„ *robustus* Sloane, *Deutsch. Ent. Zeitschr.*, 1907, p. 469, 1907.
„ *quinquepustulatus* Csiki (*nec* Wied.), *Denkschr. K. Akad. Wiss. Wien, Math.-Naturw. Kl.*, Vol. xci, p. 164, 1915.

Savaii: Fagamalo, xi.1925; Salelologa (Friedrichs), ii.1913.

Upolu (Rechinger); Apia (Friedrichs), ii.1913, 1 example at light.

Java, Mentawei Is., New Guinea, Australia, Tahiti (Miss L. E. Cheesman).

S. smaragdulus Fabricius and its variety *S. 5-pustulatus* Wiedemann, both so common throughout South-East Asia, are normally spotted, but, like other species with a wide range, vary greatly in size, coloration, and even in some minor structural characters.

I have in my collection an example of *S. dingo* Castelnau, determined by Mr. Sloane, as also an example of *S. robustus* Sloane, determined by the author, subsequently identified by him with Castelnau's species. The former example agrees very well, the latter less satisfactorily, with the specimens from Samoa

and Tahiti. *S. dingo* differs from *S. smaragdulus* in being unspotted, only the suture showing some red colour near the apex, and in having the elytral striae very finely and cleanly excised. The genus stands much in need of revision.

ANCHOMENINI.

6. Anchomenus cooki Sloane.

Platynus cooki Sloane, *Proc. Linn. Soc. N.S. Wales* (2), Vol. ix, p. 450, 1894; id., *Proc. Linn. Soc. N.S. Wales*, Vol. xxviii, p. 632, 1903.

" Samoa " (Friedrichs).

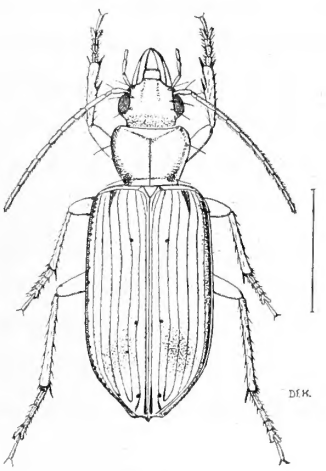
Hitherto only known as occurring in Queensland.

7. Colpodes buxtoni, sp. n.

Length : 17·0 mm. Width : 6·0 mm.

Piceous : elytra dark green, palpi, antennae, and femora more or less brown. (Text-fig. 3.)

Head moderately convex, slightly constricted behind, smooth, front uneven, the foveae very shallow and inconspicuous, eyes very large and projecting, antennae thick, extending a little beyond base of prothorax, joint 3 distinctly longer than 4. *Prothorax* convex, a little wider than head and also a little wider than long, base bordered, truncate and very oblique at sides, apex bordered and slightly emarginate, front angles much rounded, sides explanate and reflexed, but not bordered, gently rounded and widest a little before middle, not sinuate behind, front lateral pore within marginal channel at widest point, hind one forming a distinct break in the outline just before the rounded hind angles; median line rather fine, both transverse impressions fairly deep, as are the large rounded basal foveae adjoining hind angles, a slight impressed line on each side of disk, parallel with side margins; surface nearly smooth, disk with a few fine transverse striae, side margins uneven. *Elytra* moderately convex, nearly twice as wide as prothorax and also nearly twice as long as wide,



TEXT-FIG. 3.—*Colpodes buxtoni*, sp. n.

shoulders square, sides very nearly parallel, though widest at apical third, slightly sinuate behind, truncate at apex, the truncature a little emarginate, the sutural angle with a small mucro; striae fairly deep, deeper and rather irregular close to apex, finely and closely punctate, a moderately long scutellary striole, 5 deeper than the others near base; intervals rather flat, 7 and 8 very narrow and carinate near apex, curving round behind the others to apex, marginal channel containing two fine raised parallel lines, the inner one interrupted by the series of umbilicate pores, interval 3 tripunctate, first pore at a fourth, adjoining stria 3, second and third at three-fifths and near apex respectively, adjoining stria 2, surface smooth, with two slight depressions on disk on each side, one at about middle, the other before apex. The microsculpture consists in extremely fine transverse lines, which form a reticulation of strongly transverse meshes, clearly visible on elytra, faint on head and prothorax. Sterna and middle of venter practically smooth, sides of venter very finely rugose, metepisterna elongate. All tibiae and tarsi bisulcate, but protarsi much less evidently so, the metatarsi with a carina between the sulci; joint 4 of tarsi moderately bilobed, in metatarsi the outer a little longer than the inner lobe, 5 not ciliate beneath.

The species should be placed quite at the end of Chaudoir's table. It is very closely allied to *C. bennigseni* Sloane, of New Guinea, of which Dr. Horn has kindly sent me the type for comparison, and agrees entirely in the combination of unusual characters mentioned by the author of that species at the end of his description, viz. " wide bisulcate tarsi, the 8th interstice narrowly carinate on the apical curve, and the 9th interstice narrow and interrupted by its seriate punctures." It differs in its smaller size, lighter legs and antennae, and green instead of greenish-blue elytra; prothorax with wider marginal channel; elytra with the striae deeper and more evidently punctate, the apex with a very small instead of a stout mucro.

Upolu: Malololelei, 2000 ft., 25.ii.1924, 1 example ♂; a second example, also ♂, from the same locality, vii.1925 (Wilder, Bishop Museum).

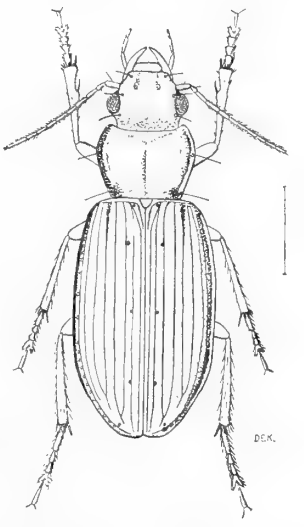
8. Colpodes pacificus, sp. n.

Length: 12·0 mm. Width: 4·1 mm.

Piceous: elytra dark green, side margins of prothorax, apical border of elytra, tibiae, and tarsi brown (Text-fig. 4).

Head moderately convex, neck slightly constricted, surface smooth, frontal

foveae short but clearly impressed, eyes large and prominent, antennae rather slender, joint 3 just longer than 4. *Prothorax* convex, cordate, a third wider than head and as much wider than long, base with its sides oblique, apex moderately emarginate, front angles rounded, sides narrowly bordered, slightly explanate and reflexed, bisetose, rounded in front and faintly sinuate before base, hind angles reflexed, sharp though a little obtuse; front transverse impression fairly deep at middle, the other impressions faint, but the basal foveae deep and produced in front as an impressed line, running parallel with sides, surface smooth. *Elytra* moderately convex, two-thirds wider than prothorax and not quite twice as long as wide, shoulders cut away somewhat obliquely, not dilated behind, sides nearly parallel, rather strongly sinuate just before and narrowly truncate at apex, without mucro; striae clean-cut, but shallow, with only traces of minute crenulation, scutellary striole and 5 close to base a little deeper, 7–8 practically joining 1–2 at apex; intervals flat, 2 a little wider, 1 and 7 close to base a little narrower than the others, 3 with three pores, first at a fifth, adjoining stria 3 (right elytron with an accessory pore between this and base), second and third at about two-fifths and four-fifths, adjoining stria 2, another pore opposite the end of 3 quite close to apex, surface smooth, with a slight depression on each side in front round stria 5, and another just before middle. Microsculpture of elytra very fine, formed by a reticulation of strongly transverse meshes, which are hardly visible on head and prothorax. Underside smooth, metepisterna elongate. Tibiae and tarsi to some extent bisulcate, protarsi very feebly and on basal joints only, mesotibiae strongly and with a carina between the sulci; joint 4 of tarsi moderately bilobed, in metatarsi the outer a little longer than the inner lobe, 5 not ciliate beneath.



TEXT-FIG. 4.—*Colpodes paci ficus*, sp. n.

About the same size as the common Eastern *C. buchanani* Hope, but darker throughout, the elytra especially being of a much darker green. Head nearly similar, prothorax a little wider, elytra distinctly wider and with the shoulders more cut away, depressions on surface less evident, no mucro at apex.

There is also a marked resemblance to the Fijian *C. truncatellus* Fairmaire,

but that species is larger, with the elytra more finely striate, and the sutural interval is provided with a short but distinct mucro.

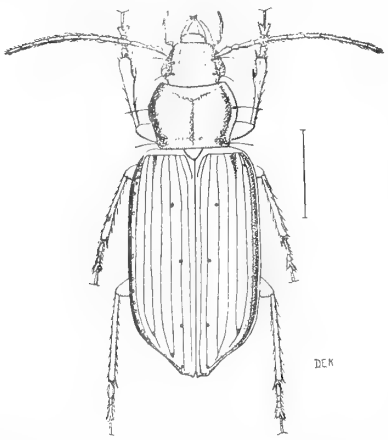
"Samoa" (O'Connor), iii.–viii.1921, 1 example ♀.

9. Colpodes hopkinsi, sp. n.

Length : 11·0 mm. Width : 4·3 mm.

Brown : head, disk of prothorax, and side margins of elytra a little darker, elytra with faint bluish-green reflection. (Text-fig. 5.)

Head slightly convex, neck a little constricted, surface smooth, uneven in front, the foveae short and rather shallow, eyes large and moderately prominent, antennae short and slender, joint 3 a little longer than 4. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, extremities finely bordered, base a little wider than apex, its sides somewhat oblique, apex slightly emarginate, front angles only a little rounded, sides finely bordered and reflexed, almost forming an obtuse angle just before middle, gently sinuate just before base, hind angles a little obtuse, reflexed, but not rounded ; median line and transverse impressions distinct, though not deep, basal foveae deep and rounded, surface uneven along margins, some faint transverse striation on disk. *Elytra* moderately convex, two-thirds wider than prothorax, and three-fourths longer than wide, shoulders oblique, the sides slightly emarginate at middle and again behind, apex narrowly truncate, the sutural angle with a short and not very sharp mucro ; striae fine, cleanly cut, impunctate, scutellary striole deeper, 6 depressed for a short distance a little behind shoulder, 5 much deeper at base ; intervals nearly flat, 7 narrowing close to base, 3 with three pores, first at a fifth, adjoining stria 3, second and third at a half and four-fifths, adjoining stria 2, surface smooth, with two slight depressions on each side, one just before middle, the other at apical third. Microsculpture of elytra fine, formed by a reticulation of slightly transverse meshes, hardly visible on head and prothorax. Under side smooth, metepisterna elongate. Tibiae bisulcate, mesotibiae outwardly carinate towards apex ; meso- and metatarsi feebly



TEXT-FIG. 5.—*Colpodes hopkinsi*, sp. n.

bisulcate; joint 4 of tarsi moderately bilobed, the outer lobe in metatarsi a little longer than the inner one, 5 not ciliate beneath.

The present species does not seem nearly related to any other; it will come near the end of Chaudoir's table and be readily distinguished from the other Samoan species by its brown colour, which is unusual in the genus.

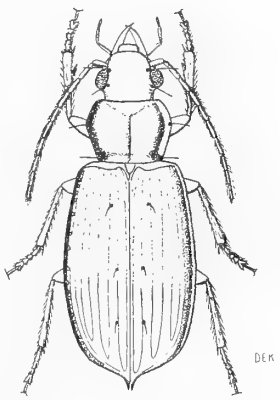
"Samoan Is.," 1 example ♀.

10. Colpodes piceus, sp. n.

Length: 8·5 mm. Width: 3·3 mm.

Piceous, very shiny: palpi, antennae, and legs more or less ferruginous. (Text-fig. 6.)

Head moderately convex, no neck constriction, smooth, frontal foveae small and inconspicuous, clypeal suture very faint, but ending on each side in a minute rounded pore, antennae of medium length, joint 3=4. *Prothorax* convex, a third wider than head, nearly twice as wide as long, extremities finely bordered, base truncate, with its sides slightly oblique, much wider than apex, front angles strongly rounded, sides finely bordered, explanate, rounded but not reflexed in front, practically straight behind, bisetose, the hind angles obtuse, reflexed, and not much rounded; median line and transverse impressions distinct but shallow, basal foveae small, rounded, and fairly deep, surface practically smooth. *Elytra* fairly convex, oval, two-thirds wider than prothorax, and three-quarters longer than wide, widest at middle, sides evenly rounded, strongly sinuate behind, narrowly truncate at apex, with a sharp mucro at each sutural angle; striae fine and minutely punctate, very faintly impressed, more deeply—especially 7—close to apex, 8 fairly deep throughout; intervals flat, 8 very narrow and carinate behind, curving round behind the other intervals to near apex, 3 with three rather small pores, first at a fourth adjoining stria 3, second and third at a half and three-fourths, adjoining stria 2, surface smooth and without depressions. Microsculpture of elytra consisting of very fine, closely placed, transverse lines, which form irregular, very wide meshes, just visible on the prothorax, but hardly so on the head. Under side



TEXT-FIG. 6.—*Colpodes pieeus*, sp. n.

smooth, metepisterna elongate. Tibiae bisulcate, but not carinate; meso- and metatarsi feebly bisulcate; joint 4 of all tarsi strongly bilobed, outer lobe much longer than inner one in two hind pairs of legs, 5 not ciliate beneath.

Similar in size and colour to *C. lafertei* Montrouzier, but with a wider and smoother prothorax, the elytra much more finely striate and strongly mucronate.

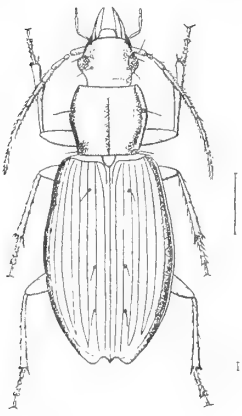
Upolu: Apia, xii.1924, and i.1925, 2 examples ♂♀.

11. Colpodes anomalus, sp. n.

Length: 8·5 mm. Width: 2·75 mm.

Black, shiny: palpi, joints 1 and 2 of antennae (rest brown), and legs ferruginous. (Text-fig. 7.)

Head convex, with a moderate neck constriction, smooth, frontal foveae short, fairly deep, and a little uneven, eyes rather small and flat, somewhat enclosed behind by the genae, antennae long and slender, joint 4 slightly longer than 3. *Prothorax* moderately convex, quadrate, slightly wider than head and also slightly wider than long, base truncate, its sides slightly oblique, a little wider than apex, which is faintly emarginate, sides narrowly bordered and reflexed, bisetose, gently rounded and barely sinuate before base, the hind angles slightly obtuse, reflexed, but not rounded; median line and front transverse impression both clearly marked, basal foveae fairly deep, diverging in front and continued forward on each side as a shallow linear impression, parallel with margin, surface smooth, the basal area a little uneven. *Elytra* flat, over two-thirds wider than prothorax, barely as much longer than wide, sides strongly rounded, faintly sinuate behind, narrowly truncate at apex, the truncature emarginate on each side, outer tooth blunt, a little longer than inner one, which forms a small mucro; striae fine and very clearly excised, impunctate, outer shallower than inner ones, all a little deeper close to apex; intervals flat, 3 tripunctate, first pore at a fifth, adjoining stria 3, second and third at a half and four-fifths, adjoining stria 2, surface smooth, with a slight depression at each side on basal half. Microsculpture of the elytra consisting of very fine closely placed lines, forming very wide meshes; on the prothorax the lines are finer and fainter; on the head there is a reticulation of isodiametric meshes.



Text-fig. 7.—*Colpodes anomalus*, sp. n.

Underside smooth, some transverse striation on head, metepisterna elongate, last ventral segment (♀) with three marginal setae on each side. Meso- and metatibiae slightly bisulcate; tarsi not sulcate, joint 4 of pro- and mesotarsi bilobed, 5 not ciliate beneath.

The depressed form, with the absence of any sulcus on the tarsal joints, render this a very distinct species, but an even more unusual character is the presence of a bifid tooth in the mentum. This is very rare in the Anchomenini, but I have recently commented (*Ent. Month. Mag.*, Vol. lxii, p. 79, 1926) on its occasional occurrence among the Himalayan species of *Anchomenus*.

Upolu: Malololelei, 25.iv.1924, 1 example ♀.

LEBIINI.

12. Celaenephes parallelus Schmidt-Goebel.

Celaenephes parallelus Schmidt-Goebel, *Faun. Col. Birm.*, p. 78, t. 2, f. 5, 1846; Bates, *Ann. Soc. Ent. Fr.* (6), Vol. ix, p. 286, 1889; id., *Ann. Mus. Civ. Gen.*, Vol. xxxii, p. 420, 1892; Bouchard, *Ann. Soc. Ent. Fr.*, Vol. lxxii, p. 176, 1903; Lesne, *Miss. Pavie Hist. Nat.*, p. 80, 1904; Vuillet, *Ins.*, Vol. ii, p. 17, 1912; Sloane, *Proc. Linn. Soc. N.S. Wales*, Vol. xlv, p. 322, 1920; Andrewes, *Trans. Ent. Soc. Lond.*, 1923, p. 46, 1923.

? *Leistus linearis* Walker, *Ann. Mag. Nat. Hist.* (3), Vol. ii, p. 203, 1858; Bates, *Ann. Mag. Nat. Hist.* (5), Vol. xvii, p. 211, 1886; Andrewes, *Trans. Ent. Soc. Lond.*, 1919, p. 188, 1919.

Taromorpha alternata Blackburn, *Proc. Linn. Soc. N.S. Wales* (2), Vol. ix, p. 85, 1894; Andrewes, *Ann. Mag. Nat. Hist.* (9), Vol. xx, p. 272, 1927.

Celaenephes rechingeri Csiki, *Denkschr. K. Akad. Wiss. Wien, Math.-Naturw. Kl.*, Vol. xci, p. 164, 1915. [New syn.]

Upolu and Savaii (Rechinger): Apia, iii., v.1924, ix., xi.1925; xii.1912 (Friedrichs); 28.x.1923 (Armstrong).

I have seen examples of this species from as far north as Chittagong in Bengal, whence its habitat extends through Indo-China, Siam, the Malay Peninsula and Archipelago to Australia and New Caledonia. Bates says it is an Indian species, but (except for the Chittagong examples, which came to hand after this paper was written) I have seen no examples from India, and Walker's type is the only specimen I have seen from Ceylon. I have examined all the types, and also a large number of specimens, which exhibit a good deal of individual variability. I strongly suspect that *C. foersteri* Bouchard (*Ann. Soc. Ent. Fr.*, Vol. lxxii, p. 176, 1903) is the same species, but I have been unable hitherto to trace the whereabouts of Bouchard's types.

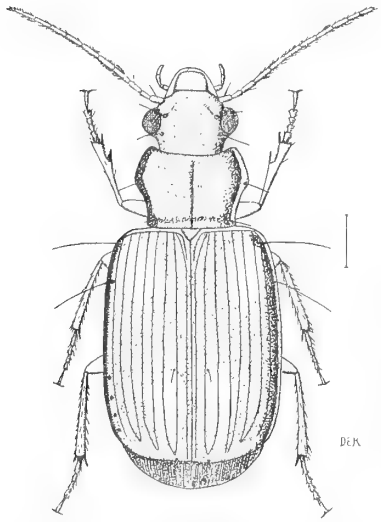
13. Mochtherus tetraspilotus Macl.

Dromius tetraspilotus Macleay, *Ann. Jav.*, p. 25, 1825; Schaum, *Berl. Ent. Zeitschr.*, Vol. iv, p. 187, 1860.

Mochtherus tetraspilotus Chaudoir, *Mém. sur les Coptodérides, Ann. Soc. Ent. Belg.*, Vol. xii, p. 241, 1869; Bates, *Ann. Mag. Nat. Hist.* (5), Vol. xvii, p. 203, 1886; id., *Ann Mus Civ. Gen.*, Vol. xxxii, p. 412, 1892; Bouchard, *Ann. Soc. Ent. Fr.*, Vol. lxxii, p. 174, 1903; Heller, *Deutsch. Ent. Zeitschr., Jahrg.* 1916, p. 273, 1916; Andrewes, *Trans. Ent. Soc. Lond.*, 1919, p. 163, 1919; id., *Ent. Month. Mag.*, Vol. lxii, p. 70, 1926.

Thyreopterus tetrasemus Dejean, Spec. Gen., Vol. v, p. 448, 1831.

Mochtherus angulatus Schmidt-Goebel, *Faun. Col. Birm.*, p. 76, 1846; Redtenbacher, *Reis. Novar., Zool.*, Vol. ii. Col., p. 7, 1867; Andrewes *Trans. Ent. Soc. Lond.*, 1923, p. 45, 1923; id., *Trans. Ent. Soc. Lond.*, 1924, p. 461, 1924.



TEXT-FIG. 8.—*Mochtherus tetraspilotus* Macleay.

Panagaeus retractus Walker, *Ann. Mag. Nat. Hist.* (3), Vol. ii, p. 203, 1858; Andrewes, *Trans. Ent. Soc. Lond.*, 1919, p. 189, 1919.

Cyrtopterus quadrinotatus Motchulsky, *Bull. Soc. Imp. Nat. Mosc.*, Vol. xxxiv, No. I, p. 106, 1861.

Upolu: Malololelei, 25.iv.1924; Apia, iv., ix.1925.

One of the commonest species of South-East Asia, found throughout India, Ceylon, Burma, the Andaman Is., Malay Peninsula and Archipelago, Christmas I. (Malay region), Indo-China, and Formosa. I have no record of its occurrence in New Guinea or Australia. (Text-fig. 8.)

In India this insect is frequently found under bark, and Dr. Beeson mentions it as having on one occasion in Burma been attracted to newly felled *Tectona grandis*.

14. Endynomena pradieri Fairm.

Plochionus pradieri Fairmaire, *Rev. Mag. Zool.* (2), Vol. i, p. 34, 1849.

Endynomena pradieri Chaudoir, *Mon. des Callidides, Ann. Soc. Ent. Belg.*, Vol. xv, p. 186, 1872; Bates, *Ann. Soc. Ent. Fr.* (6), Vol. ix, p. 283, 1889.

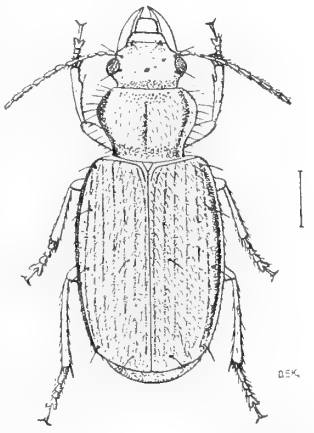
Saronychium inconspicuum Blackburn, *Ent. Month. Mag.*, Vol. xiv, p. 142, 1877; Andrewes, *Ann. Mag. Nat. Hist.* (9), Vol. iii, p. 483, 1919.

Endynomena huebneri Fairmaire, *Pet. Nouv. Ent.*, Vol. ii, p. 286, 1878; id., *Ann. Soc. Ent. Fr.* (6), Vol. i, p. 245, 1881. [New syn.]

Thyreopterus paroecus Csiki, *Denkschr. K. Akad. Wiss. Wien., Math.-Naturw. Kl.*, Vol. xci., p. 164, 1915. [New syn.].

Upolu (Rechinger): Apia, 2.iii. and x.1924; Vailima, 28.xii.1924. "Samoa" (Swale).

Originally described from material from Polynesia, this species appears to be very widely distributed, though I have seldom seen more than one or two specimens from the same locality. My records include India, Ceylon, Indo-China, Malay Peninsula, Sumatra, Philippine Is., Cocos-Keeling Is., New Caledonia, Ellice Is., Marquesas Is., Tonga Is., Tahiti, and Honolulu. (Text-fig. 9.)



TEXT-FIG. 9.—*Endynomena pradieri* Fairmaire.

As might be expected, an insect with such a wide distribution exhibits considerable variation both in colour and form. The types of the various authors have been examined by me, and I find that specimens from Polynesia are usually light brown, with sharply rectangular hind angles to the prothorax, and the elytra distinctly striate and finely punctate. Indian and Malayan examples are generally darker, with slightly obtuse hind angles to the prothorax, and the elytra less clearly striate and rather less finely punctate. In several cases I have seen only single examples from the localities cited above, and where there have been more, the characters are not constant, so that for the present it seems best to regard them all as individuals of one variable species.

15. Parena politissima Chaud.

Crossoglossa politissima Chaudoir, *Col. Nov.*, p. 20, 1883.

Upolu: Malololelei.

Unfortunately I have not been able to see the type of this species, which was obtained in New Caledonia. Except in one character, viz. the form of the prothorax, the two Samoan specimens agree so well with the description that I do not feel much doubt about the identification. It must be remembered too that the author had no opportunity of revising his work, the descriptions of this and of a few other species having been published posthumously.

It was only shortly before completing the present paper that I was able to examine the type of *Parena bicolor* Motchulsky, and to identify *Phloeodromius* W. Macleay and *Crossoglossa* Chaudoir with Motchulsky's genus.

NOTE.—There are two further specimens, both from the Bishop Museum, Honolulu, and similarly labelled "Samoa, Savaii, Salailua, 23.v.1924, E. H. Bryan, Junr., Collector." They present some unusual features and certainly belong to different species of a genus unknown to me; indeed they may belong to different genera, and, without the dissection of several organs, which would certainly damage the specimens, I have not felt able to deal with them. Both examples appear to belong to the Pterostichini, but evidently differ somewhat in their characters from the European and Asiatic members of that tribe.

LIST OF TEXT-FIGURES

DYTISCIDAE

Von A. Zimmermann, München

(Mit 2 Text-figuren.)

Aus Samoa hatte ich bis jetzt drei Schwimmkäfer-Ausbeuten zur Bearbeitung vor mir. Die erste enthält das von Dr. K. Friedrichs, die zweite das von Dr. H. Swale und die dritte das von den Herren P. A. Buxton und G. H. E. Hopkins gesammelte Material. Die beiden ersten Ausbeuten (sie enthalten nur 3 bezw. 2 Arten in wenigen Exemplaren) dokumentieren sich ohne weiters als das zufällige Ergebnis kurzer flüchtiger Sammelarbeit; das dritte der gegenwärtigen Arbeit als Unterlage dienende Material ist wohl etwas umfangreicher, lässt aber gleichfalls schon durch die beigegebenen Daten erkennen, dass sich die Sammeltätigkeit auch hier nur auf wenige Stunden einzelner Tage beschränkte.

Es dürfte daher zweifellos nötig sein, um sich ein wenigstens einigermassen vollständiges Bild über den Bestand der Schwimmkäferfauna Samoa's machen zu können, die Ergebnisse weiterer Forschungsreisen abzuwarten. Ich zweifle nicht daran, dass sich bei planmässiger gründlicher Untersuchung der vorhandenen Wasserbecken die bescheidene Artenzahl der bis jetzt bekannt gewordenen Dytisciden nicht unwesentlich vergrössern lässt, wenn auch der vulkanische Charakter der Inselwelt und die anscheinend wenig günstigen hydrographischen Verhältnisse derselben auf eine relativ arme Hydrocantharenfauna schliessen lassen.

Nach dem vorhandenen Material erweist sich die Schwimmkäferfauna Samoa's als eine verarmte Kolonie der australischen Fauna. Nur *Rhantus liopteroides* muss als östliches Element angesehen werden, das von dem auf den Tahiti-Inseln heimischen *Rh. debilis* Sharp abzuleiten, vielleicht auch nur als eine Lokalrasse des letzteren zu bewerten ist. Als endemische Art kann *Bidessus curviplicatus* bezeichnet werden; sie gehört in den allernächsten Verwandtenkomplex des australischen *B. amabilis* Cl. Alle übrigen Arten kommen auch in Australien vor; *Notomicrus tenellus* Cl. dehnt seinen Verbreitungsbezirk bis zu den Sundainseln, Java und Sumatra aus, und die beiden

Allerweltsbürger *Rhantus pulverosus* Steph. und *Cybister tripunctatus* Ol. finden sich auf allen vier Erdteilen der westlichen Hemisphäre.

1. Notomicrus tenellus Cl.

(*N. oblongus* Wehncke.)

Die Tiere stimmen mit den mir aus Java und Sumatra bekannt gewordenen Exemplaren in allen Merkmalen völlig überein. Die zwei Punktserien der Decken sind äusserst fein, nur bei starker Vergrösserung erkennbar, die Hinterhüften und die Basis des Abdomens sind gebräunt, und die Färbung der Flügeldecken ist im allgemeinen dunkler als die des rötlichgelben Halsschilds, hellbräunlichrot, in einer dreieckigen aber wenig hervorgehobenen Skutellarpartie bräunlich.

Australische Tiere konnte ich bis jetzt nicht erhalten; ich zweifle aber nicht daran, dass *Notomicrus laevigatus* Sharp mit *N. tenellus* Cl. identisch ist; wenigstens lassen sich aus der Beschreibung desselben (Sharp, "On Aquatic Carnivorous Coleoptera or Dytiscidae": *Sci. Trans. R. Dublin Soc.*, Vol. 2, Ser. II, p. 260, 1882) keinerlei Unterschiede feststellen, welche die specifische Selbständigkeit der Form begründen könnten.

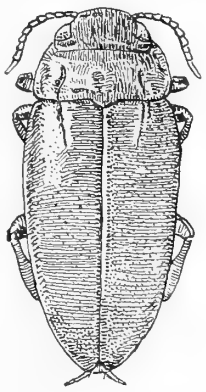
Wahrscheinlich gehört auch *N. punctulatus* Fauvel (*Rev. d'Ent.*, T. xxii, p. 244, 1903) aus Neucaledonien hierher.

Upolu: Mulifanua, 4.x.1925.

2. Bidessus curviplicatus, sp. n. (Text-fig. 1).

$3\frac{1}{2}$ mm. Länglich oval, nach hinten allmählich verengt, wenig konvex, glänzend. Unterseite schwarzbraun, Beine rötlich, ziemlich kräftig, Vorder- und Mitteltarsen breit, stark gelappt. Fühler gleichfalls rötlich, dick, besonders in der Basalhälfte, Glied 5 und 6 beim ♂ etwas erweitert, Endglied schmal, doppelt so lang als die übrigen Glieder. Kopf rötlichbraun, vorn rötlich, innerhalb der Augen mit einer seichten Längsdepression, die vor der Fühlerinsertion durch einen flachen kurzen Querwulst abgeriegelt wird, fein und wenig dicht, nur auf dem Scheitel etwas kräftiger punktiert. Clypeus nicht gerandet, gerade abgeschnitten. Halsschild rötlichgelb, breit, in der vorderen Hälfte fast breiter als die Decken, an den Seiten gerandet, stark gerundet, nach hinten verengt,

auf der Scheibe spärlich und fein, hinter dem Vorderrand und vor der Basis etwas stärker und viel dichter punktiert. Die Basalstrichel lang, bis über die Mitte reichend, leicht S-bogenförmig geschwungen. Flügeldecken rötlichbraun, die Seiten rötlich, ohne Nahtstreifen, aber mit zwei Basalstricheln, die kaum länger sind als die Halsschildstricheln, etwas schräg nach innen ziehen und daher nach hinten leicht konvergieren. Die Punktierung ist ziemlich kräftig, dicht, gleichmässig fast über die ganze Fläche verteilt, nur an den Seiten und in einer Schulterpartie feiner und spärlicher.



TEXT-FIG. 1.—*Bidessus curviplicatus*, sp. nov.

Die Art ist mit dem australischen *B. amabilis* Cl. zweifellos sehr nahe verwandt, von diesem aber durch die bedeutendere Grösse und durch die dichte Punktierung, die fast über die ganzen Decken gleichmässig verteilt ist, verschieden.

Upolu : Mulifanua, 15.x.1925. Type in Brit. Museum, Paratype in meiner Kollektion.

3. Copelatus marginatus Sharp.

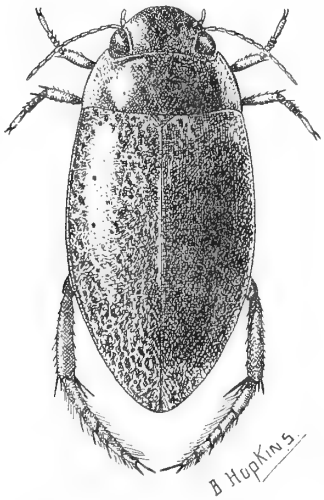
Zwei Exemplare aus Tonga : Nukualofa, 22.xi.1925.

Für Samoa wurde die Art bereits durch das von Dr. K. Friedrichs gesammelte Material nachgewiesen. (*Arch. f. Naturg.*, 88. Jahrg., Abt. A, 10 Heft, p. 148, 1922.)

4. Rhantus liopteroides, sp. n. (Text-fig. 2).

$7\frac{1}{4}$–$7\frac{1}{2}$ mm. Länglich oval, nach vorn und hinten ziemlich gleichmässig, aber nur wenig verengt, schwach gewölbt, glänzend. Unterseite braunschwarz, Epipleuren, Prosternum, Taster und Beine rötlich, Fühler rötlichgelb, Kopf braun, eine Scheitelpartie und die vordere Hälfte rötlich. Halsschild und Decken rötlichgelb, ersteres mit einem braunen, schlechtbegrenzten Diskalfleck, der sich oft so stark ausdehnt, dass die Grundfärbung nur in einem mehr oder weniger breiten Seitensaum erhalten bleibt, letztere mit zahlreichen, schwach gekrümmten schwarzen Sprenkeln, die sich teilweise zu unregelmässigen Längsreihen anordnen und nur ein schmales Suturalband und einen breiten Seitensaum freilassen.

Die Skulptur der Oberseite ist doppelt; sie setzt sich aus einer ausserordentlich feinen, kaum erkennbaren Mikroretikulierung, und aus grösseren unregelmässigen Netzmaschen zusammen, welch letztere auf Kopf und Halsschild kräftiger eingeschnitten sind als auf den Decken. Halsschild mit einer vorn und hinten verkürzten, schwach eingeschnittenen Mittellinie. Flügeldecken mit drei Längsreihen kräftiger Punktgrübchen, die sich vor der Spitze verfeinern und etwas verwirren. Prosternalfortsatz flach, seitlich kaum abwärtsgedrückt, Metasternalflügel Schmal.



Text-fig 2.—*Rhantus liopteroides*, sp. nov.

Die kleinste Art der Gattung, die dem aus Tahiti beschriebenen *Rhantus debilis* Sharp äusserst nahesteht; sie unterscheidet sich von letzterem hauptsächlich durch die kleinere, schmälere, mehr parallelseitige Gestalt, durch den flacheren, an den Seiten nicht abwärtsgedrückten Prosternalfortsatz, durch die schmäleren Metasternalflügel und durch die kräftigeren Punktreihen der Decken; ausserdem sind beim ♂ die Vorder- und Mitteltarsen viel schwächer erweitert, die Vorderklauen schlanker, stärker gekrümmt und, im Gegensatz von *R. debilis*, bei dem die innere Klaue etwas kürzer ist als die äussere, von gleicher Länge.

Upolu: Malololelei, 4.v.1924; Type und Paratype im Brit. Museum, weitere zwei Paratypen in meiner Kollektion.

5. Rhantus pulverosus Steph.

Das Verbreitungsgebiet dieser Art ist sehr ausgedehnt; es erstreckt sich über Nordafrika, Europa, Asien, die Sundainseln und die Philippinen, auf Australien, Neuseeland, Neukaledonien und wahrscheinlich auch auf den grösseren Teil der melanesischen und polynesischen Inselwelt. Die Tiere aus Samoa sind von unseren europäischen Exemplaren kaum verschieden, nur die Oberseite scheint etwas weniger gewölbt zu sein, die männlichen Vorder- und Mitteltarsen sind sichtlich schwächer erweitert und die beiden Vorderklauen sind fast gleichlang.

Tonga: Nukualofa, 19.xi.1925; Samoa: Savaii-Insel, Safune, 15.v.1924 (Bryan).

6. Hydaticus consanguineus Aubé.

Die Art wird durch eine mehr oder weniger deutliche, aber stets schlecht begrenzte, gemeinsame Diskalmakel auf den Flügeldecken charakterisiert, die durch Zusammenfliessen der schwarzen Sprenkeln entsteht. Auf gleiche Weise bilden sich zuweilen auch vor der Spitze ein paar kleine, gewöhnlich nur schwach hervortretende Fleckchen. Diese Färbungsmerkmale sind die einzigen Differenzen durch welche *H. consanguineus* von *H. leander* Rossi (*H. fabricii* MacLeay) zu unterscheiden ist ; ob sie zur artlichen Trennung der beiden Formen genügen, erscheint mir allerdings fraglich.

Upolu : Malololelei, 9.vi.1924 ; Laulii, 21.i.1925 ; Mulifanua, 1.v.1917 (Swale). Savaii : Fagamalo, 9.i.1924 ; Tuasivi, xi.1925.

Tonga : Nukualofa, 19.xi.1925.

6a. Hydaticus goryi Aubé.

Von den typischen Tieren aus Australien durch die Färbung verschieden. Das Halsschild ist einfärbig rötlichgelb, in der Mitte kaum gebräunt ; die Flügeldeckenzeichnung ist bis auf die subbasale Querbinde, die sich an den Schultern angelhackenartig umbiegt, undeutlich. Die postmediane Querbinde verliert sich nahezu ganz in dem Sprenkelfeld der äusseren Deckenhälfte, das sie nach hinten begrenzt ; ebenso kommt die Binde vor der Spitze infolge der eingelagerten schwarzen Sprenkeln nur wenig zur Geltung. Neben der Naht läuft eine schmale gelbe Längslinie, die dem inneren Ende der subbasalen Querbinde entspringt und nach hinten bis zur Spitzenmakel zieht.

Tonga : Nukualofa, 19.xi.1925 ; 2 Exempl.

7. Cybister tripunctatus Ol.

Die weitverbreitete, in allen warmen Gebieten der westlichen Hemisphäre heimische Art scheint auch in Samoa nicht selten zu sein. Die Tiere sind von mittlerer Grösse und ähneln in Habitus und Färbung der malayischen Form ; die Seiten der Flügeldecken sind breit gelb gesäumt, bei den ♀♀ fehlt die Sexualskulptur ganz oder ist durch ganz vereinzelte kurze Strichchen nur schwach angedeutet.

Upolu : Laulii, 21.i.1925 ; Apia, vi.1925 ; Mulifanua (Swale).

STAPHYLINIDAE

By Malcolm Cameron, M.B., R.N., F.E.S.

(With 2 Text-figures.)

Our knowledge of the Staphylinidae of the islands of the South Pacific is so imperfect that no general conclusions can be drawn from the specimens collected in Samoa.

The following species are represented in the collection submitted to me.

OXYTELINAE.

1. Priochirus (Syncampsochirus) forticornis Fauv.

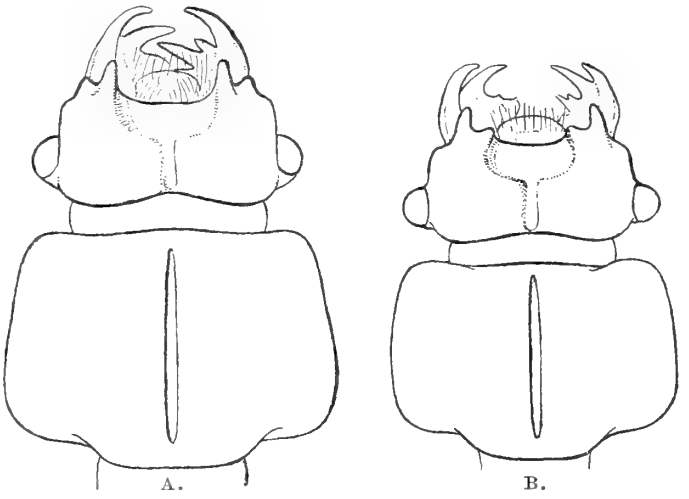
Ann. Mus. Civ. Gen., Vol. x, p. 185, 1877.

Upolu: Malololelei, Vailima, ii.–xii.1924 (Buxton and Hopkins); Savaii, Salailua, v.1924 (Bryan). Ten examples. The head and prothorax are figured in Text-fig. 1, B.

2. Priochirus (Syncampsochirus) samoensis Blanch.

Voy.: Pole Sud., Ent., p. 54, C. 4, f. 11, 1853.

Upolu: Malololelei, 2000 ft. above the sea, iv.–xi.1924 (Buxton and Hopkins); Savaii, Safune, rain forest, 2000–4000 ft. above the sea, v.1924 (Bryan). Sixteen examples.



Text-fig. 1.—Head and prothorax; A, of *Priochirus freminvillei* Le Guillon; B, of *P. forticornis* Fauv.

3. Priochirus (Plastus) freminvillei Le Guillon.

Journ. Institut, Vol. ix, p. 280, 1841.

Upolu: Vailima, 24.v.1924; Malololelei, 2000 ft. above the sea, ii.–xi.1924;

Apia, 18.v.1924 (Buxton and Hopkins); Savaii: Salailua, 23.v.1924 (Bryan). Eleven examples. The head and prothorax are figured in Text-fig. 1, A.

4. Lispinus impressicollis Motsch.

Bull. Soc. Imp. Nat. Mosc., Vol. xxx, p. 495, 1857.

Upolu: Malololelei, 25.iv.1924; Apia, i.1925, in a rotting pumpkin.
Widely distributed throughout the Tropics.

5. Lispinus castaneus Fauv.

Ann. Mus. Civ. Gen., Vol. xii, p. 206, 1878.

Upolu: Malololelei, 2000 ft. above the sea, vi.1924; Apia, vi.1924 (Buxton and Hopkins); Tutuila: Fagasa, ix.1924 (Swezey and Wilder). Several examples.

Occurs also in New Guinea, Northern Australia, Seychelles, and Fiji.

6. Trogophloeus siamensis Fauv.

Rev. d'Ent., Vol. v, p. 144, 1886.

Upolu: Apia, xii.1924. One example.
Also found in Siam, Java, Sumatra, Madagascar.

7. Oxytelus, sp.n.

Savaii: Salailua, 21.v.1924 (Bryan). One example.

8. Osorius samoensis Bernh.

Arch. f. Naturg. Vol. 88, A, 10, p. 149, 1922.

Upolu: Malololelei, 2000 ft. above the sea, vi., xi.1924, i.1925; Vailima, vi.1924 (Buxton and Hopkins); Tuaefa, ix.1923; Savaii: Safune, lowlands to 1000 ft.; rain forests to 4000 ft, iii.1924 (Bryan); Tutuila: Amauli, 6.ix.1923; Leone Road, 7.ix.1923; Pago Pago, 10.ix.1923; Afono Trail, 25.ix.1923 (Swezey and Wilder). Several examples.

PAEDERINAE.

9. Palaminus samoensis, sp.n.

Fore-parts reddish-yellow, abdomen reddish-brown. Antennae and legs pale yellow. Length 3 mm.

Colour of *P. pennifer* Fauv., but smaller and narrower, the antennae shorter, the penultimate joints obviously shorter, though longer than broad; would appear to be near *P. philippinus* Bernh., but to differ in colour. Head, with eyes, a little broader than the thorax, coarsely and closely punctured. Thorax slightly broader than long, the sides practically straight and convergent posteriorly, before the middle of the base with a short impunctate elevation with a depression on either side, rather coarsely and closely punctured like the head. Elytra about $1\frac{1}{2}$ times longer than the thorax, closely, coarsely rugulosely punctured. Abdomen with the usual imbricate sculpture.

Savaii, 9.v.1924, and rain forest, 2000–4000 ft. above the sea (Bryan). Two examples; type in the Bishop Museum, Honolulu; paratype in the British Museum.

10. Palaminus, n.sp.

Upolu: Malalolelei, vii.1924. One defective example.

11. Medon tutuilanus, sp.n.

Sub-depressed, rufo-ferrugineous, moderately shining. Elytra reddish-testaceous, with indeterminate brown fascia of varying breadth. Abdomen brown, the posterior margins of the last two segments broadly testaceous. Antennae and legs reddish-testaceous. Length 3·5 mm.

Colour of *Ophiomedon incomptus* Shp., but the thorax broader, this and the head more finely punctured. Narrower than *M. opacellus* Fauv. and more depressed, the temples straighter and the posterior angles more briefly rounded, the thorax shorter and broader, the puncturation simple and the colour of the elytra different. Head as broad as long, square, a little broader than the thorax, temples parallel, practically straight, the posterior angles briefly rounded, the base feebly emarginate, closely and moderately coarsely punctured, with a small impunctate space on the vertex. Antennae rather short, the 7th to 10th joints transverse. Thorax distinctly transverse, trapezoidal, before the base with a short, median, impunctate keel and short impression on each side; puncturation very similar to that of the head. Elytra short, one-third longer than the thorax, closely, rather finely, asperately punctured. Abdomen rather closely and rather finely punctured, finely and moderately closely pubescent.

Tutuila, Pago Pago, 24.ix.1923 (Swezey and Wilder). Type in the Bishop Museum.

12. Lithocharis vilis Kr.

Arch. f. Naturg., Vol. 25, p. 139, 1859.

Upolu : Malololelei, about 2000 ft., vi.1924.
Widely distributed throughout the tropics.

STAPHYLININAE.

13. Leptacinus pallidus, sp.n.

Head and thorax reddish-testaceous, elytra and abdomen yellow, the former occasionally infuscate about the postero-external angles. Antennae reddish-testaceous. Legs testaceous. Length 4 mm.

In build very similar to *Leptacinus filum* Kr., but more robust. Head oblong, wider than the thorax, the sides parallel, the posterior angles briefly rounded ; median frontal furrows lightly curved inwards, with an umbilicate puncture anteriorly ; lateral grooves deeper and narrower, oblique, extending from an umbilicate puncture near the antero-internal border of the eye, backwards and inwards, to an umbilicate puncture behind the median groove but not connected with it ; temples with two punctures, one close to the eye ; the whole of the upper surface with a few small scattered punctures, ground sculpture well marked, longitudinally strigose. Antennae with the 3rd joint a little shorter than the 2nd, 4th about as long as broad, 5th to 10th transverse, the penultimate about twice as broad as long. Thorax much longer than broad, the sides straight, not much narrowed behind, all the angles rounded ; disc with four larger quadrately placed punctures, another near the anterior angles and another laterally ; besides these larger punctures there are a few fine scattered ones ; ground sculpture strigose, more or less longitudinal. Scutellum triangular with two fine setiferous punctures, transversely strigose. Elytra as long as, but a little broader than, the thorax, obsoletely sculptured with scattered larger and smaller punctures, the latter more numerous and without ground sculpture. Abdomen practically impunctate along the middle, at the sides with a few fine setiferous punctures. Intermediate coxae contiguous, posterior tibiae lightly curved.

Tutuila : Fagasa, under rotten bark, 9.ix.1923 (Swezey and Wilder). Two examples : type in the Bishop Museum, paratype in the British Museum.

14. Holocorynus longiceps, sp.n.

Depressed, black, shining, the posterior angles and base of the thorax narrowly reddish-testaceous. Antennae ferrugineous. Mandibles prominent, black. Legs testaceous. Length 8·5 mm.

Head oblong, much longer than broad, broader and almost as long as the thorax, the sides exactly parallel, the posterior angles briefly rounded. Eyes very small. Median frontal grooves superficial, parallel, rather long, posteriorly with an umbilicate setiferous puncture; lateral grooves short, oblique, commencing at a large umbilicate puncture near the eye, and ending at the umbilicate puncture at the end of the median groove; from the base nearly to the apex with a narrow deep sulcus in the middle line; on either side, for about the anterior two-thirds, with a few elongate umbilicate punctures, the basal region impunctate, the long temples with three or four punctures, the disc with a few small punctures and with a fine, interrupted, longitudinal ground sculpture. Antennae with the 2nd joint shorter than the 3rd, 3rd clavate, 4th shorter, clavate, 5th to 10th slightly transverse. Thorax much longer than broad, widest at the rounded anterior angles, the sides strongly narrowed to the rounded posterior angles, the disc with four quadrately placed punctures and with two others near the anterior angles, before the middle of the base with a short impressed line, the whole surface covered with a vermiform ground sculpture more or less transverse on the disc and longitudinal at the sides. Scutellum with two large setiferous punctures and transverse wavy ground sculpture. Elytra as long as, but a little broader than the thorax, obsoletely impressed behind the shoulder and before the apex, with a few very obsolete larger punctures and an exceedingly fine irregular puncturation, without ground sculpture. Abdomen practically smooth in the middle, the sides of the segments with a few fine setiferous punctures. Posterior tibiae short, lightly curved. The head in this species is much longer than in *H. discedens* Shp.

Upolu: Malololelei, 25.iv.1924. A single example (type): in the British Museum.

15. Thyreocephalus taitiensis Boh.

Eugen. Resa, p. 26, 1858 (*Xantholinus*).

Upolu: Apia, ii., v.1924 (Buxton and Hopkins); 15.ix.1923 (Swezey and Wilder); Malololelei, 21.vi.1924 (Armstrong); Vailima, 26.iii.1925 (Buxton and

Hopkins); Tutuila: Pago Pago, 24.ix.1923 (Swezey and Wilder). Eight examples.

Widely distributed in the South Pacific region.

16. Cafius nauticus Fairm.

Rev. et. Mag. de Zool. (2), Vol. i, p. 288, 1849 (*Philonthus*).

Upolu: Vailima, 9.vi.1924. One example.

Widely distributed in the South Pacific region and Red Sea littoral.

TACHYPORINAE.

17. Coproporus formosae Bernh.

Tr. Linn. Soc., Vol. xviii, I, p. 178 (note), 1922.

Upolu: Malololelei, 2000 ft. above the sea, vi.1924 (Buxton and Hopkins); Tutuila: Amauli, 6.ix.1923 (Swezey and Wilder). Three examples.

ALEOCHARINAE.

18. Oligota (Holobus) chrysopyga Kr.

Arch. f. Naturg., Vol. 25, p. 45, 1859.

Upolu: Apia, vii.1924. Four examples.

Widely distributed in East and West Indies, East Africa and elsewhere.

19. Oligota (sensû stricto) semirufa, sp.n.

Moderately shining, the fore parts reddish-testaceous, the abdomen reddish-castaneous, the posterior margins of the segments rufescent, the last two segments testaceous. Antennae with the first six joints testaceous, the rest black, forming a club. Legs testaceous. Length 0·6 mm. —Build of *O. parva* Kr. but smaller and differently coloured, the antennae shorter and stouter and the puncturation finer. The 7th joint of the antennae is much broader than the 6th, the 8th and 9th increasingly broader, quite three

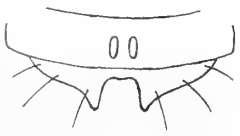
times broader than long, the 10th short and stout, a little longer than broad; the whole insect very finely and closely punctured, and with a fine yellow pubescence.

Upolu: Apia, vii.1924. Three examples. Type in the British Museum.

20. Gyrophaena albidicornis Bernh.

Denkschr. K. Akad. Wiss. Wien, Math.-Naturw. Kl., Vol. lxxxix, p. 689, 1913.

As Dr. Bernhauer remarks, the ♂ characters are difficult to see, and I have accordingly dissected out the last two abdominal segments, a figure of which is here given. (Text-fig. 2.) It will be seen that the 7th segment is furnished in the middle just before the posterior margin with a pair of small tubercles, the lateral margin of the 8th on each side is produced into a short triangular tooth, and the posterior margin of the segment between the teeth is very feebly bisinuate. The two tubercles on the 7th segment are present in the five males examined by me.



TEXT-FIG. 2.—*Gyrophaena albidicornis* Bernh.; 7th and 8th tergites of male.

Upolu: Malololelei, 2000 ft. above the sea, 30.xi.1924. Eighteen examples.

21. Coenonica buxtoni, sp.n.

Shining; head and thorax black, elytra yellow, more or less infuscate on the scutellar and postero-external angles; abdomen brown, the posterior margins of the segments rufescent, the 6th segment black. Antennae black, the first three joints testaceous. Legs testaceous. Length 2·75 mm.

Colour as in *C. puncticollis* Kr., smaller, the head and thorax much more finely punctured, the latter much less transverse and less dilated in front. Head lightly impressed on the vertex, the whole surface finely and sparingly punctured. Antennae with the 2nd and 3rd joints of equal length, 4th about as long as broad, 5th to 10th transverse, gradually increasing in breadth, the penultimate about twice as broad as long. Thorax about one-third broader than long, widest just before the middle, the sides rounded, more strongly narrowed behind and slightly sinuate before the obtuse posterior angles; before the middle of the base transversely impressed, and with a short, obsolete divergent impression on each side of the middle line and united with the basal

impression, occasionally with a short impression in the middle line in front, the whole surface finely, but rather more closely, punctured than the head. Elytra broader and a little longer than the thorax, slightly transverse, finely, obsoletely and moderately closely punctured. Abdomen very finely and very sparingly punctured, with a transverse row of larger, obsolete punctures at the bases of the anterior segments.

♂ unknown.

Upolu : Apia, xii.1924. Three examples. Type in the British Museum.

22. Homalota variiventris Kr.

Arch. f. Naturgesch, Vol. 25, p. 34, 1859.

Upolu : Apia, ii.1924, in a rotting pumpkin (Buxton and Hopkins) ; Tutuila : Pago Pago, 24.ix.1923 (Swezey and Wilder). Four examples.

Also found in Ceylon, Indo-Malay Peninsula, Sumatra, Java and New Guinea.

23. Tachyusa insulana Fairm.

Rev. et Mag. de Zool. (2), Vol. i, p. 287, 1849 (*Bolitochara*).

Apia, ii.1924 (Buxton and Hopkins) ; Tutuila : Pago Pago, 24.ix.1923 (Swezey and Wilder). Four examples.

Also in Fiji.

24. Aleochara nigra Kr.

Arch. f. Naturgesch., Vol. 25, p. 13, 1859.

Upolu : Apia, 23.v.1924. One example.

Also occurs in Ceylon, Indo-Malay Peninsula, Sumatra and elsewhere.

LIST OF TEXT-FIGURES

HYDROPHILIDAE

By A. d'Orchymont

(With 1 Text-figure.)

The material communicated by Mr. P. A. Buxton, Mr. W. M. Giffard, the British and Bishop Museums, consists of eighty-two specimens belonging to two sub-families (Sphaeridiinae and Hydrophilinae), three genera (*Dactylosternum*, *Noteropagus*, *Enochrus*) and six species. One of the latter (*D. abdominale*) is nearly cosmopolitan, and is found in refuse or spoiled fruits. Another (*E. parvulus*) is known to occur in Asia Minor, Africa, Madagascar, the Seychelles, Aldabra I., Coetivy I. and India. A third form (*D. subquadratum*), perhaps also a refuse dweller, is similarly found in Tahiti, Fiji, Buru, Borneo and the Philippines, whilst a fourth is perhaps the same as *E. tritus* Broun, of New Zealand. The fifth (*N. politus*), living in rotten bark, has been recorded, too, from Java, Sumatra, Indo-China and India, and is near akin to *N. obscurus*, known hitherto only as occurring in Timor and Borneo. Finally the sixth and last species (*E. bryani*) is apparently new to science.

So far as the study of this small collection goes, we seem entitled to accept the opinions of Krämer * and K. Friederichs † as to the manner in which the Samoan group has been populated with animals and plants. The authors in question draw attention to the heterogeneous character of the fauna of these islands, which they consider to be due to accidental colonisation. This explanation is evidently in accordance with the relatively recent geological age of the group and its emergence above sea-level owing to volcanic action. For this reason the Samoan fauna cannot be very rich. On the other hand, at least four of the species forming the subject of the present contribution were collected in considerable numbers.

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* Krämer, "Die Samoa Inseln," 2 Vols., 4to, 956 pp., with 5 plates and 4 maps (Stuttgart : 1901–1903) ; "Der Tropenpflanzer" : *Zeitschrift für tropische Landwirtschaft*, Beiheft 5 (Berlin : 1918).

† K. Friederichs, "Die von Dr. K. Friederichs in Samoa und Indo-China gesammelten Käfer" : *Archiv. für Naturgeschichte*, 88 Jahrg. Abt. A., 10 Heft, pp. 147–159, December 1922.

The Hydrophilid fauna of Tahiti, Tonga and other parts of Polynesia is practically unknown, and I am aware only of two species of *Dactylosternum* (*D. abdominale* and *D. subquadratum*) living in the first-named of these islands. The same is true of Fiji ; only two species have been recorded (*Hydrous sabellifer* Fairmaire [? = *H. gayndahensis* MacLeay], and *Ochthebius eremita* Knisch). Personally I have seen only two specimens from those islands ; they represent a small *Enochrus* related to, if not identical with, an Australian or New Caledonian species. Comparison of the Samoan fauna with that of these countries is therefore still impossible. Apart from the present material, I have only heard of three Samoan species, of which two were named by Knisch in the paper of Dr. Friederichs already alluded to. I have discussed these two forms in the systematic part of this paper.

The material of which an account is given below was obtained chiefly from Upolu and Tutuila ; there are also three specimens from Tau, Manua. From the largest island, Savaii, I have only seen one specimen.

SPHAERIDIINAE.

1. Dactylosternum abdominale Fabricius, 1792.

Twelve specimens. Samoan Is. (Swale, 1917), kitchen refuse, 27.xi.1925 ; Upolu : Apia, iii.1924 ; i.1925 ; Tutuila : Leone Road (Swezey and Wilder), 7.ix.1923 ; Pago Pago (0–300 ft., W. M. Giffard Coll.).

This species is known to occur in all the warmer regions of the globe, but has not been recorded from New Zealand.

2. Dactylosternum subquadratum Fairmaire, 1849.

Seventy-three specimens. Upolu : Apia, 3.vii.1924 ; Malololelei, 24.ii.1924 ; iv.1924 ; 25.iv.1924 ; vi.1924, 2000 ft. Tutuila : Pago Pago, 18.iv.1924 (Bryan) ; Amauli, Pago Pago, Fagasa, ix.1923 ; Tau, Manua, 27.ix.1923 (Swezey and Wilder).

The type of *D. subquadratum* was obtained in Tahiti, and the species was recognised by Sharp in his material from the Hawaiian Islands. It has also been recorded from the Fiji Islands, Buru, Borneo and the Philippines. *D. seriatum-titanicum* Knisch, 1922, described from a single specimen from Apia,

Upolu, is in my opinion certainly this species. In Sumatra, Java, Engano, the Mentawei Is. and Indo-China, it is (as has already been pointed out by me *) represented by a smaller form, *D. seriatum* Knisch (Régimbart *in litt.*), in all probability not specifically distinct from *D. subquadratum* Fairmaire.

3. Noteropagus politus d'Orchymont, 1919.

Eight specimens. Tutuila : Pago Pago, 21.ix.1923, in rotten bark ; Leone Road, 7.ix.1923 (Swezey and Wilder).

These specimens make an approach to the Indo-Chinese form, *N. punctatus* m., but the oblique rows of punctures on the sides of the elytra are composed behind of somewhat larger pits, and the interstitial puncturation of the elytra has no tendency to be arranged in a single row posteriorly, between the normal series of punctures.

HYDROPHILINAE.

Tribe : *HYDROBIINAE.*

Subtribe : Helocharae.

4. Enochrus (Lumetus)? tritus Broun.

A specimen from Upolu, Tafua Volcano, 1917 (Dr. H. Swale : in coll. Brit. Mus.), perhaps a ♀, as the claws are not hooked, seems very near to, if not identical with, *E. tritus* Broun, of New Zealand. The prefrons before the eyes has only a faint median infuscation behind, but, since Broun recorded a paler, less common variety of *E. tritus*, this differentiation may be imputed to individual variation. The larger punctures of the sides of the pronotum are hardly discernible, and the last ventral segment has a deep ciliated notch at the tip. As in *E. tritus*, the mesosternal process forms a very thin and large lamina, nearly perpendicular on its anterior side, and with a very minute acumen at its anterior angle.

This is a suitable place in which to express the opinion that the New

* A. d'Orchymont, " Notes on Philippine Hydrophilidae " : *Philippine Journ. Sci.*, Vol. 30, p. 366, July 1926.

Zealand *E. variolorum* Broun seems to be only a colour variety of the more abundant *E. tritus*. Sharp has already pointed out * that the character from which the specific name of the unique type was derived is an accidental one. The characters given by him in a dichotomic table on the same page seem to me to be only colour variations, perhaps even due to sexual differentiation, his *Philhydrus tritus* being then the ♀, and his *Ph. variolorum* the ♂, of the same species. More material from New Zealand, as well as from Samoa, is needed in order to decide these questions.

5. Enochrus (Lumetus) bryani, sp.n. (Text-fig. 1).

Type. Samoa, Savaii: Salailua, 22.v.1924 (Bryan), Bishop Museum, 3·2 × 1·9 mm.

I have not been able to assign this beetle to any described species, and I do not know of any very near ally. The shape is not very convex, and the pronotum is but little narrowed from the hind to the anterior angles, so that the latter are definitely wider than the eyes.

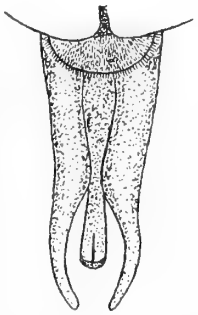
Head dirty yellow, with a roughly triangular infuscation covering base of postfrons, narrowed anteriorly and extending across the blackened antennofrontal suture to the middle of the prefrons. The latter is emarginate in front behind the labrum, and the preclypeus is visible. Puncturation of head close, not very strong nor deep, with interstices between punctures shining, not alutaceous. Hind portions of head (vertex) under margin of pronotum finely strigose. A group of a few larger punctures can be seen on the inner side of the eyes. Labrum infuscate, nearly black, finely punctured. Maxillary palpi not very long, the last segment not infuscated at the tip.

Pronotum dull yellow, infuscated in the middle, the infuscation reaching the posterior but not the anterior margin. The curve of the sides nearly continuous with the outline of the elytra. Posterior angles sharply, the anterior ones much more widely, rounded. Lateral and posterior margins of the disc finely and wholly bordered; anterior side widely and not very deeply emarginate for the reception of the head. Puncturation of the disc very conspicuous, as dense as on the head and somewhat stronger. Lateral ellipses of larger punctures easily seen among the finer ground punctures.

* *Trans. Ent. Soc. Lond.*, p. 473, 1884.

Elytra taken together elliptic, not quite twice as long as wide behind the prothorax, dusky in colour, dull yellowish at the sides and behind. Puncturation like that of pronotum, of same depth and closeness. On the disc the three irregular rows of larger punctures can easily be seen, and along the outer margin there is even an indication of a fourth row. Sutural stria extending beyond the basal fourth of the length of the elytra.

Under surface, including femora, dusky, the knees, tibiae and tarsi reddish. Mentum shining, with an anterior rounded impression and some well marked punctures. Prosternum in the middle without anterior tooth. Mesosternum with an elevated, median, slightly thickened and posteriorly not very thin lamina, the anterior side of which is nearly perpendicular, while the lower edge is free from inequalities but provided with a very minute acumen at its anterior angle. Middle of metasternum before posterior coxae with a very small elongate shining space free from pubescence. Fifth ventral segment with a small but conspicuous ciliated notch at the end. Claws, especially the anterior ones, hooked in the male.



Text-fig. 1.—*Enochrus bryani*, aedeagus.

Aedeagus (Text-fig. 1) with outer lobes narrowed and curved inwards at the end.

6. Enochrus (Methydrus) parvulus Kuwert, 1888 (*nec* Reiche, 1856).

Twelve specimens. Upolu: Tafua Volcano (H. Swale), 1917; Apia (Swezey and Wilder), 13.ix.1923; iii.1924; v.1924; xi.1924; i.1925; vii.1925.

These specimens agree so closely with others from the Seychelles and Aldabra Is. (H. Scott det.), especially as regards the shape of the mesosternal lamina, that I do not hesitate to consider them as belonging to *E. parvulus*. *E. malabarensis* Régimbart is very similar, but in this species the mesosternal lamina is larger and more perpendicular on its anterior side. The type of *E. parvulus* was obtained at Beirut, and the species has since been met with in Egypt, Tropical Africa, the Transvaal, Madagascar, Seychelles, Aldabra, Coetivy I. and India. Knisch's record (Friederichs, *l.c.*, p. 151) of *E. esuriens* *

* Erroneously spelt "*escuriens*" by Knisch.

Walker, from Apia, probably refers to *E. parvulus;* the true *E. esuriens* Walker has no lamina on the mesosternum, this part of the body being only carinate along the middle.

TEXT-FIGURE

Text-fig. 1. *Enochrus bryani*, aedeagus.

CLAVICORNIA AND LAMELLICORNIA

By Gilbert J. Arrow

(With 13 Text-figures.)

In reviewing the beetles of many different families (over seventy species), the identification of which has fallen to my share, the fact that calls for remark in the first instance is the predominance of species breeding in rotting wood, such as those belonging to the three families Cucujidae, Colydiidae and Lucanidae, of which nearly all those previously unknown are members. No less than four species of Lucanidae (Stag-beetles), apparently peculiar to the Samoan Islands, are recorded, while the other great Lamellicorn groups, so much more numerous amongst the insect populations of most regions of the earth, are either completely absent or represented only by species of very wide distribution, which may be supposed to have been introduced in comparatively recent times, probably by human agency. The, in several cases, too successful establishment of those immigrants, which have become serious pests, shows that there are no local conditions inimical to their kind to account for the deficiency. The explanation is probably to be found in the fact that while the Lucanidae pass their early stages in rotting wood, the Scarabaeid Lamellicornia nearly all do so underground, so that the ocean, which may have brought the former in drifting logs from other shores, formed an impassable barrier to the latter, until surmounted by human agencies.

The four apparently indigenous species of Lucanidae have developed no very strongly marked differential features, and, although suggesting a fairly respectable antiquity for the fauna, do not afford ground for regarding it as other than comparatively recent.

As to the origins of the beetle-fauna, although some of the numerous widely-distributed constituents, such as *Adoretus versutus*, *Oryctes rhinoceros* and *Oxycetonia versicolor*, appear to have come from Asia, so far as can be judged from this part of the fauna it owes very little to Asiatic elements. A considerable proportion of the species are completely cosmopolitan, but a fair number

are not known to occur outside the Samoan Islands. This may to some extent be due to the very insufficient state of our knowledge of the insects of other Polynesian islands, but it can scarcely be doubted that each group of islands, if not each island, has many beetles peculiar to itself. The affinities with distant regions apparently indicated by the study of the present collections would perhaps be rendered less striking by fuller knowledge of the faunas of the other island groups. For example, five minute insects here recorded, *Sacium angusticolle*, *Psammoecus pallidipennis*, *Litargus vestitus*, *Propalticus oculatus* and *Orphinus terminalis*, have been previously reported only from the Hawaiian Islands. Until it is known in what other islands these may also be found, it would no doubt be possible to attach too great importance to this seemingly remarkable distribution.

Certain indications of American influence must also be mentioned. The occurrence of a single example of *Tenebroides mordax*, a species only found previously in Costa Rica, might have been regarded as accidental had it been unaccompanied by any other facts pointing in the same direction; but no suspicion can be attached to the Aphodiid *Ataenius orbicularis*, numerous specimens of which have been taken by various collectors, and which, originally described as peculiar to Samoa, has since been found to be a Central American species. Again, *Hystricones vagans*, an insect of minute size but with well-marked generic features, here described and figured for the first time, is attributed to a genus of which the only other known species is found in Central America. Two other species which also make their first appearance here, *Colydodes samoensis* and *C. denudatus*, similarly belong to a Tropical American genus. A single species of this genus was long ago recorded from Mysol. Of the same significance is a newly described species of *Hapalips*, a genus almost peculiar to Tropical America, but of which one species is known to occur in New Zealand and one in Ceylon, while three are found in the Madagascan region.

The only new genus that I have considered it necessary to describe is of interest from the standpoint of geographical distribution, as it includes, in addition to *Monothallis samoensis*, found in the Samoan, Fijian and Loyalty Islands, a species inhabiting Gilolo and another occurring in Australia, all distinguished by the possession of a particular structure for stridulation; this is situated on the head, and is of a type not found in their allies. The new genus is not alone in showing Australian affinities, but the latter are rather with the Papuan element in the Australian fauna than with the truly Australian

(aboriginal) fauna. This is clearly seen in the LUCANIDAE, which belong to the two genera *Aegus* and *Figulus*, both of which occur in Australia but have their centre of distribution in New Guinea, whence they range in all directions.

CLAVICORNIA.

CORYLOPHIDAE.

1. Sacium angusticolle Scott.

Fauna Hawaiiensis, Vol. iii, pt. 5, p. 416, 1908

Tutuila I.: Leone Road, Sept. (Swezey and Wilder).

Hawaiian Is.

A single specimen was found in rotten bark. The species has only been recorded hitherto from Hawaii.

2. Meioderus nitidus Matth.

Monogr. Coryloph., p. 105, 1899.

Upolu I.: Malololelei, 2000 ft., Feb.

Japan.

A single example, not in good condition, appears to belong to this species, previously found only in Japan.

SCAPHIDIIDAE.

3. Scaphisoma, sp.

Upolu I.: Malololelei, 2000 ft., Mar.

The family is represented only by a single specimen, probably immature, of an unknown species.

HISTERIDAE.

4. Platysoma urvillei Le Guill.

Rev. Zool., p. 223, 1844.

Upolu I.: Apia, Feb., Oct.; Malololelei, 2000 ft., April.

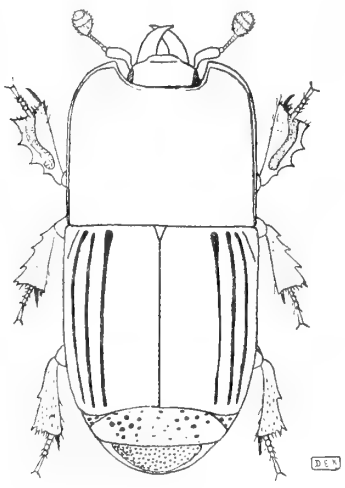
Tutuila I.: Pago Pago, Fagasa, Leone Road, Sept., Oct. (Swezey and Wilder).

Fiji Is., Tahiti, Borneo, Malay Peninsula, Madagascar.

This insect was found under rotten bark of Hau trees in Tutuila.

5. Platysoma cavicauda, sp. n. (Text-fig. 1).

Planum, angustum, duplo longius quam latius, capite minute punctulato, stria transversa vix lateraliter producta, clypeo leviter excavato, labro valde arcuato; pronoto lateraliter anguste marginato, stria antice breviter recurva; elytris striis integris tribus externis impressis, praeterea toto laevibus; propygidio grosse et parce punctato, pygidio grosse sat crebre et aequaliter punctato, haud convexo aut inflexo, utrinque paulo excavato; mesosterno antice sed haud lateraliter marginato; segmento ventrali basali striis duabus fortiter divergentibus impresso; tibiis anticis dentibus quatuor fere aequedistantibus armatis.



TEXT-FIG. 1.—*Platysoma cavicauda*, sp. nov.

Long: 4 mm.; lat. max. 2 mm.

Upolu I.: Malololelei, 2000 ft., April.

Tutuila I.: Fagasa, Sept. (Swezey and Wilder).

A small species of very narrow form, the elytra of which bear three complete lateral striae on each side, the rest being entirely obsolete. It closely resembles *P. tenuimargo*, Schm. (Seychelles Is.) and *P. rosselense*, Lewis (Louisiade Archipelago), but is rather more elongate than either and differs conspicuously in its pygidium, which is not convex, with its apex incurved, but flattened and prominent, very strongly punctured and a little hollowed on each side. The head has a straight clypeal stria,

not continuous with the short curved lateral stria; the clypeus is a little hollowed, less broad than that of *P. rosselense*, and the labrum is crescent-shaped and narrow. The marginal stria of the mesosternum is not continuous at the sides with that of the metasternum, and the lateral striae of the basal sternite of the abdomen diverge much more strongly than in *P. tenuimargo*.

6. Carcinops 14-striatus Steph.

Ill. Brit. Ent., v, p. 412, 1832.

Upolu I.: Apia, July.

A single example was found of this little insect, which is distributed throughout the world.

7. Paromalus, sp.

Upolu I.: Vailima, June.

Tutuila I.: Pago Pago, Fagasa, Leone Road, Sept. (Swezey and Wilder).

A few specimens were taken in company with *Platysoma urvillei*, under rotten bark. The species is very minute and apparently undescribed, but as I am not in a position to compare it with various known Papuan species it seems best to leave its description to a more favourable occasion.

NITIDULIDAE.

8. Carpophilus hemipterus L.

Syst. Nat., p. 358, 1758.

Upolu I.: Apia, Jan.

This insect is carried to all parts of the world in dried fruits and other provisions.

9. Carpophilus dimidiatus F.

Ent. Syst., i, p. 261, 1792.

Upolu I.: Apia, Apr., May, July, Aug., Nov., Dec.; Vailima, Jan.; Mt. Vaea, 1500 ft., Dec.; Malololelei, 2000 ft., June.

Tutuila I.: Pago Pago, Sept. (Swezey and Wilder); Leone Road, March (Judd.).

Manua Group: Tau, Sept. (Swezey and Wilder).

Found in rotten Sasalapa fruit (*Anona* sp.).

Like the previous species, this is very common everywhere in foodstuffs.

10. Haptoncus luteolus Er.

Germar's Zeitschr., Vol. iv, p. 272, 1843.

Upolu I.: Apia, Jan., Feb., Apr., May, Dec.

Tutuila I.: Pago Pago, Sept. (Swezey and Wilder); Leone Road, March (Judd.).

Found in rotten Pumpkins and Sasalapa.

This is yet another cosmopolitan species.

11. H. ocularis Fairm.

Rev Zool., (2), i, p. 363, 1849.

Tutuila I.: Amauli, Sept. (Swezey and Wilder); Pago Pago, Sept. (Swezey and Wilder).

Savaii I.: Salailua, May (Bryan).

This is found throughout the East, from the Seychelles to the Hawaiian Is.

12. Epuraea upoluensis, sp. n.

Fusco-ferruginea, capite paulo obscuriore, pedibus antennisque flavis; oblongo-ovalis, parum convexa, minute griseo-pubescens, vix nitida; capite sat lato, distincte punctato, oculis prominentissimis; pronoto subtiliter coriaceo, medio modice crebre ac fortiter, lateraliter subtilius, antice fere rugose, punctato, fere duplo latiori quam longiori, lateribus haud reflexis, aequaliter arcuatis, antice fortiter approximatis, angulis anticis rotundatis, posticis fere rectis, basi fere recto, scutello lato; elytris quam pronotum plus duplo longioribus, paulo nitidioribus, leviter subrugose punctatis; corpore subtus nitido, prosterno haud producto; antennarum clava sat late ovali.

Long: 1·5–2 mm.; lat. max. 1 mm.

Upolu I. : Malololelei, 2000 ft., June, July.

Tutuila I. : Eastern end, 1070 ft., June (Kellers).

Numerous specimens were taken in Upolu, but I have seen only a single example from Tutuila.

This little insect bears considerable resemblance to the Australian *E. sloanei* and *E. nelsonensis*, Blackb., and especially to the former. It is broader and less convex than that species and has much narrower tibiae. The pronotum and elytra are more closely and roughly punctured, more pubescent and less shining. The antennae are like those of *E. sloanei*, but with a less broad terminal joint, and less slender and with a much broader club than in *E. nelsonensis*.

I may here record that *Epuraea tasmanica*, Grouv., is a synonym of *E.* (*Haptoncura*) *nelsonensis*, Blackb., referred to above, and *E. simsoni*, Grouv., of *E.* (*Haptoncura*) *victoriensis*, Blackb. The types of all four are in the British Museum collection.

TROGOSITIDAE.

13. Tenebroides mauritanicus L.

Syst. Nat., I, 2, p. 674, 1767.

Upolu I. : Apia, Jan., May, June, Sept.

A familiar cosmopolitan insect found in flour, etc. The specimens were probably introduced.

14. T. mordax Shp.

Biol. Centr.-Amer., Vol. ii, pt. 1, p. 423, 1891.

Upolu I. : Apia, Sept.

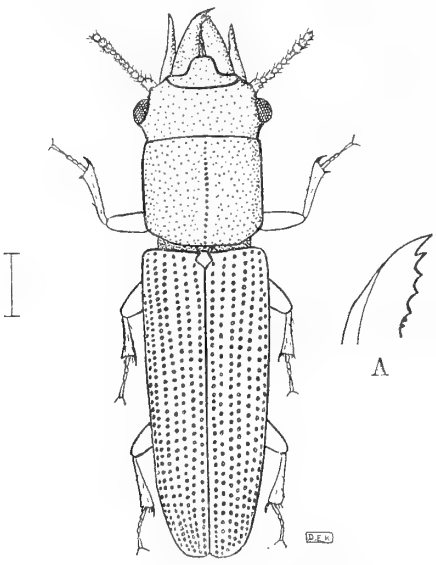
Centr. America : Costa Rica.

A single specimen was obtained, which I am unable to distinguish from the Tropical American species of this name.

CUCUJIDAE.

15. Prostomis samoensis, sp. n.

Pallide flavus, nudus, nitidus, capite ubique modice, lateraliter grosse, punctato, mandibulis fortiter punctatis, haud latis, basi deflectis, deinde attenuatis, lateribus haud angulatis aut lobatis, processubus genalibus modice discretis, haud convergentibus; pronoto ubique sat fortiter punctato, longitudine fere ad latitudinem aequali, medio sulcato, sulco bene punctato, lateribus fere rectis, antice laevissime arcuatis, angulis posticis distinctis, basi fortiter arcuato; elytris valde et crebre seriato-punctatis; corpore subtus ubique sat fortiter et aequaliter punctato, metasterno medio valde sulcato; antennis brevissimis, articulis 5–10 transversis, 9 et 10 latis, 11 paulo elongato.



TEXT-FIG. 2.—*Prostomis samoensis*, sp. nov.; A, left mandible further enlarged.

Long. 8 mm.; lat. max. 2 mm.

Upolu I. (Swale).

Three specimens were found.

The species of this very peculiar and distinct genus, although scattered in widely separated areas from Southern Europe to Tasmania, are remarkably alike in appearance, the best marked distinctions being found in the mandibles. These, in *P. samoensis*, are strongly punctured and broadest at the base, where they are widely deflected, and taper from before the middle to the tips without marginal tooth or lobe. The species closely resembles the Fijian *P. pacificus*, Fairm., in which the mandibles are similar but bear a very strong lateral lobe at the base. In addition the genal processes of *P. samoensis* are long, nearly parallel and separated at the base by an interval twice their own width at that point (not more than twice, as in *P. pacificus*). It is rather more strongly punctured than *P. pacificus*, the head and pronotum bearing moderately large punctures and the latter a deep median groove containing close punctures. The pronotum is a very little wider than it is long and very slightly narrower in front than behind. The elytra bear rows of rather larger, closer and more regular punctures. The lower surface also is more evenly punctured, the

metasternum scarcely more strongly at the sides than in the middle and the abdomen well but a little more finely punctured. The antennae are very short, the 6th to the 10th joints distinctly transverse, the 9th and 10th a little broader and the 11th a little longer than in *P. pacificus*.

The specimen described by Waterhouse as the female of *P. atkinsoni* certainly belongs to another species. It resembles the present species more than the actual type of the Australian *P. atkinsoni*.

16. Shoguna termitiformis Fairm.

Pachycephala termitiformis, Fairmaire, *Ann. Soc. Ent. Belg.*, Vol. xxvii, pt. 2, p. 5, 1883.
Shoguna polita, Arrow, *Monogr. Christmas* I., p. 92, 1900.

Upolu I.: Apia, July; Malololelei, 2000 ft., Nov.

New Britain, New Guinea, Saylee, Sumatra, Borneo, Java, Christmas I., Philippine Is., Seychelles Is.

This species was first discovered in New Britain and redescribed by me from a single specimen from Christmas I., in the Indian Ocean, a locality so distant as to render it improbable that the insects were of the same species. Its distribution now proves to be extremely wide, and I have little doubt that my name is redundant.

17. Inopeplus metallescens Fairm.

Ann. Soc. Ent. France, (6), Vol. i. p. 254, 1881.

Upolu I.: Apia, Nov.
Tonga. Fiji Is.

18. Laemophloeus ignotus Kess.

Arch. f. Nat., Vol. lxxxvii, Abt. A, 6 Heft, p. 30, 1921.

Upolu I.: Apia, Nov., Dec.; Malololelei, 2000 ft., June, Nov.

19. Laemophloeus ovalis Grouv.

Ann. Mus. Genova, Vol. xviii, p. 281, pl. 7, fig. 7, 1883.

Upolu I.: Apia, May, Nov., Dec.
Tutuila I., June (Kellers).
Borneo. Sumatra.

20. Laemophloeus pusillus Schonh.

Syn. Ins., Vol. i, 3, p. 55, 1817.

Upolu I.: Apia, Aug., "Ex Mus rattus."
An insect of world-wide distribution.

21. Psammoecus pallidipennis Blackb.

Trans. R. Dublin Soc., Vol. iii, p. 144, 1885.

Upolu I.: Apia, Jan.
Hawaiian Is.
A single specimen was found. The type from Honolulu also is unique.

22. Psammoecus cruciger Wat.

Ent. Month. Mag., Vol. xiii, p. 125, 1876.
P. cephalotes, Grouv., *Mém. Ent.*, p. 20, 1919.
P. upsilon, Blackb., *Trans. Roy. Soc. S. Austr.*, Vol. xxvii, p. 155, 1903.

Tutuila I.: Leone Road, March (Judd).
New Caledonia, New Guinea, N. Australia.
The types of the three descriptions quoted above are all in the British Museum, and I think there can be no doubt that they are conspecific. It is probable from the description that *P. breviusculus*, Reitt., is the same also.

23. Psammoecus biapicalis, sp. n. (Text-fig. 3).

Nigro-brunneus, capite antennisque rufis, pedibus antennarumque articulis duobus ultimis pallide flavis, harum articulis 7–9 infuscatis, elytris fascia lata communi posthumerali maculaque magna utrinque apicali; parum elongatus, convexus, nitidus, breviter griseo-pubescens, capite lato, sat punctato, oculis magnis; pronoto brevi, sat crebre punctato, margine antico leviter arcuato, basi recto, fortiter angustato, lateribus rotundatis, spina longa utrinque mediana duabusque brevioribus, tuberculis minutis anterioribus; elytris quam prothoracem multo latioribus, ad humeros latis, postice rotundatis, vix attenuatis, antice sat fortiter, postice minutius punctatis; prosterno metasternique lateri-

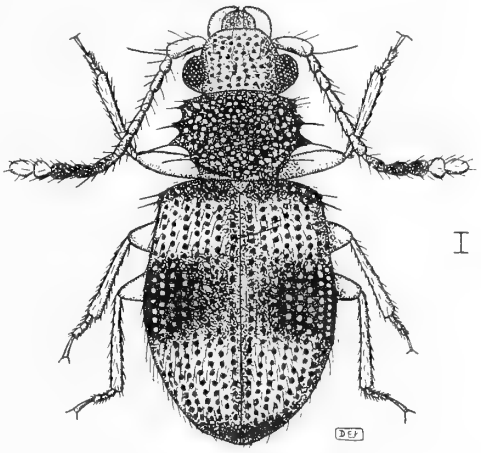
bus fortissime punctatis, hujus medio valde sulcato; antennis gracilibus, articulis omnibus, penultimo excepto, elongatis.

Long: 2·5 mm.; lat. 1·5 mm.

Upolu I.: Vailima, Jan.; Apia, Nov., Feb.; Malololelei, 2000 ft., June.

Tutuila I.: Leone Road, March (Judd).

Found in abundance.



TEXT-FIG. 3.—*Psammoecus biapicalis*, sp. nov.

The majority of the numerous species composing this genus have the terminal joint of the antenna pale and preceded by from three to five black joints. *P. biapicalis* is the only one known to me, except *P. raffrayi*, Grouv., in which the last two joints are pale. It has no other resemblance to that species, which is quite different in colour and pattern and has much shorter and more coarsely punctured elytra, with spinose sides. The new species resembles the Seychellean *P. simoni*, Grouv., but is less closely punctured and more shining, and the antennae, in addition to their different coloration, are much more slender. Occasional examples have the last three antennal joints pale, but at least a trace of pigmentation is usually visible in the 9th joint.

24. Psammoecus obscurus, sp. n.

Obscure brunneus, capite, antennarum basi maculaque parva postmediana utriusque elytri rufis, pedibus corporeque subtus fulvis: modice elongatus, nitidus, breviter griseo-pubescens, capite laxe punctato, oculis parvis, pronoto sat crebre punctato, parum convexo, basi haud valde contracto, leviter arcuato, marginibus lateralibus tuberculis minutis 5 utrinque instructis; elytris ovalibus, fortiter convexis, grosse seriato-punctatis, humeris late rotundatis; prosterno metasternique lateribus profunde, his grosse punctatis, metasterni medio valde sulcato; antennis gracilibus, articulis omnibus, penultimo excepto, elongatis.

Long: 2·5 mm.; lat. 1 mm.

Upolu I.: Malololelei, 2000 ft., June.

Savaii I.: Rain forest, 2000–4000 ft., May (Bryan).

This species is a little more elongate than *P. biapicalis*, but less elongate and smaller than *P. pallidipennis*. It is peculiar owing to its dark colour, and especially that of the antennae, which are without the usual pale terminal joint. It may be compared with *P. signatus*, Grouv. (Mysol), which is similarly coloured, but has a pale last joint to the antenna and a red antemedian elytral bar. *P. obscurus* is smaller, more convex and more shining than that species, with less closely punctured thorax and more coarsely punctured elytra, the latter with more rounded shoulders. The eyes are unusually small but very prominent.

It is perhaps permissible to mention here an unfortunate mistake which has occurred with regard to another species of this genus. In describing *Psammoecus decoratus*, Grouvelle has given its habitat as Shembaganur, in Southern India. This was evidently due to a too hasty reading, upon the label of the type specimen (in the British Museum), of the name Samboangan, which really belongs to a locality in the Philippine Islands.

25. Cryptamorpha desjardinsi, Guér.

Icon. Règne Anim., Ins., p. 196, 1838.

Upolu I.: Apia, July (Wilder).

Savaii I.: Safune, May (Bryan).

Tutuila I.: Amauli, March (Judd).

Fiji, New Zealand, New Caledonia, Hawaiian Is., W. Indies, St. Helena, Madeira, Japan, Mauritius.

26. Monanus concinnulus Walk.

Ann. Mag. Nat. Hist. (3), Vol. ii, p. 207, 1858.
Emporius signatus, Frauenf., *Verh. Zool.-Bot. Ges. Wien*, Vol. xvii, p. 438, 1867.

Upolu I.: Apia, July (Wilder).

A single specimen, probably introduced. The insect is found in all parts of the world.

27. Monanus, sp.

Tutuila I.: Leone Road, March (Judd).

One specimen of a species related to the Hawaiian *M. brevicornis*, Blackb.

28. Silvanus unidentatu Oliv.

Ent., Vol. ii, 18, p. 12, 1790.

Upolu I. : Malololelei, 2000 ft., June.
A single specimen. This is another cosmopolitan insect.

MYCETOPHAGIDAE.

29. Litargus vestitus Sharp.

Trans. Ent. Soc. Lond., 1879, p. 88, 1879.

Upolu I. : Apia, Nov., Dec. ; Vailima, Jan. ; Malololelei, 2000 ft., June.
This species was first discovered in the Hawaiian Islands, and has not as yet been recorded from any other locality.

30. Propalticus oculatus Sharp.

Trans. Ent. Soc. Lond., 1879, p. 88, 1879 ; Scott, *Fauna Hawaiiensis*, Vol. iii, pt. 5, pl. 16, fig. 12.

Upolu I. : Apia, Nov., Dec., Jan.
Like the previous species, this has only been known hitherto in the Hawaiian Islands.

31. Typhaea stercorea, L.

Syst. Nat., p. 357, 1758.

Upolu I. : Apia, Jan. (Wilder).
Found throughout the world.

COLYDIIDAE.

32. Cicones amoenus Fairm.

Rev. Mag. Zool., (2), Vol. ii, p. 52, 1850.

Upolu I. : Apia, May, June, Nov., Dec., Jan. ; Mt. Vaea, 1500 ft., Dec.
Tahiti (under bark of *Inocarpus edulis*, according to Fairmaire).

Society Is.: Raiatea (Miss Cheesman, May).

Marquesas Is.: Fatu Hiva (C. A. Collenette, on *Pancratium* flowers, Feb.), Hiva Oa, 300 ft. (C. A. Collenette, Jan., at light).

33. Colobicus parilis Pasc.

Journ. of Entom., Vol. i, p. 202, 1860.

Upolu I.: Apia, Feb.

Hawaiian Is., Moluccas, Malayan Region, India, China, Australia.

Only a single Samoan specimen has been found.

34. Bitoma siccana, Pasc.

Xuthia siccana Pasc., *Journ. of Ent.*, Vol. ii, p. 128, pl. 8, fig. 1, 1863.
Bitoma siccana, Arrow, *Ann. Mag. Nat. Hist.* (8), Vol. iv, p. 193, 1909.

Tutuila I.: Leone Road, Sept. (Swezey and Wilder).

Moluccas, Philippine Is., Malay Peninsula, India, Seychelles Is., etc.

35. Bitoma, sp.

Tutuila I.: Fagasa, Sept. (Swezey and Wilder).

A single specimen of an unidentified species was found under rotten bark.

36. Neotrichus latiusculus Fairm.

Ditoma latiuscula Fairm., *Ann. Soc. Ent. Fr.* (6), Vol. i, p. 255, 1881.
Neotrichus latiusculus Arrow, *Ann. Mag. Nat. Hist.* (8), Vol. iv, p. 193, 1909.

Upolu I.: Apia, March, July, Oct., Dec. (Swale); Malololelei, 2000 ft., April, June.

Tutuila I.: Pago Pago, Oct. (Swezey and Wilder).

Fiji Is.: Viti Levu (R. Veitch).

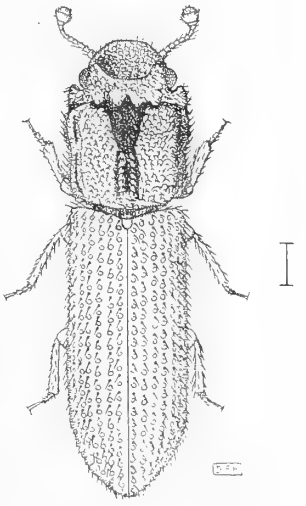
37. Colydodes samoensis, sp. n. (Text-fig. 4).

Fuscus, opacus, pedibus antennisque rufescentibus, setis cinereis parum dense vestitus, subcylindricus, angustus, pronoto parum minute granulato,

longitudinem ad latitudinem aequali, lateribus fere parallelis, minute denticulatis, angulis anticis prominentibus, posticis obtusis, pone marginem anticum profunde transversim impresso et late triangulariter excavato, cavitatis apice post medium attingenti, margine antico medio leviter concavo, utrinque paulo producto, postice quadrilobato; elytris fortiter haud crebre seriato-punctatis, basi leviter concavo, humeris fere rectis, lateribus parallelis, apice paulo attenuato.

Long. 5·5 mm.; lat. max. 1·5 mm.

Upolu I.: Malololelei, 2000 ft., June.



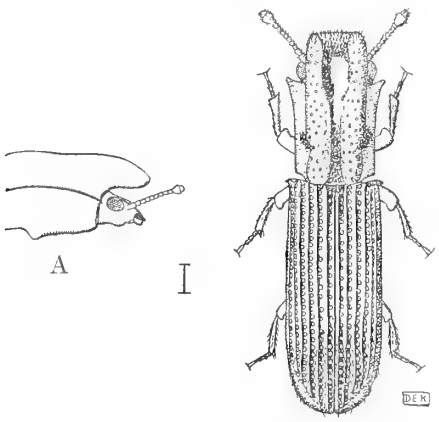
TEXT-FIG. 4.—*Colydodes samoensis*, sp. nov.

Only a single specimen was found. Two non-American species, *C. wallacei* Pasc., (Mysol) and *C. setosus*, Reitt. (Sumatra), have previously been assigned to this genus. The new one differs considerably from both, but most resembles *C. wallacei*, the other having a median undivided lobe to the front margin of the pronotum. *C. samoensis* is rather smaller and more elongate than *C. wallacei*, the two anterior lobes of the pronotum are small and widely separated, the discal impression is much larger and wider, its apex reaching past the middle of the pronotum, the front angles are not divergent, the hind angles are blunter, the elytra are a little more than twice as long as the prothorax, more distinctly punctured than in *C. wallacei* and with finer setae. The antennae are short, but a little less thick and compact than those of *C. wallacei*.

The name *Colydodes*, published by Motschulsky in 1855, was rejected by Sharp (*Biol. Centr.-Amer., Col.*, Vol. ii, pt. 1, p. 447) in favour of *Distaphyla*, five years later in date, on the ground that it was undescribed by Motschulsky. The description is certainly entirely inadequate, and the only definite feature mentioned (and referred to in the misleading specific name *gibbiceps*, which Sharp has adopted) is attributed to the wrong part of the body; but, as no standard of adequacy, by which the validity or otherwise of a description can be judged, has ever been proposed, it does not seem to me to be possible to ignore even this, since it is possible to recognise the insect.

38. Colydodes denudatus, sp.n. (Text-fig. 5).

Niger, nitidus, pedibus antennisque rufescentibus; nudus, subcylindricus, angustus, pronoto quam latitudinem paulo longiori, lateribus fere rectis, antrorsum leviter divergentibus, angulis anticis prominentibus, posticis rectis, basi arcuato, disco utrinque longitudinaliter elevato, fortiter punctato, antice producto, longe bilobato, lobis rotundatis, minute setosis, ad capitis marginem anticum attingentibus; elytris grosse seriato-punctatis, humeris paulo productis, fere inquinatis; corpore subtus fortiter haud crebre punctato, segmento ultimo ventrali profunde arcuatim impresso.



TEXT-FIG. 5.—*Colydodes denudatus*, sp. nov.; A, lateral view of the anterior part.

Long. 3·5 mm.; lat. max. 0·75 mm.

Upolu I.: Apia, Nov. 1924.

Savaii I.: Lower forest, 1000–2000 ft., Safune, May (Bryan).

A single specimen was found in each island.

This is a small and very peculiar species, differing from all its allies by the absence of the fine bristly setae with which they are clothed. These are here represented only by a few minute hairs upon the two prothoracic processes. The pronotum is coarsely punctured, with a smooth median line which dilates anteriorly into a flat, oval, drumlike area, which extends forward considerably in front of the anterior angles. On either side of the flat median area the surface is elevated, and the production of these raised parts forms a pair of strong dorsal horns extending forward as far as the front margin of the head. The sides are nearly straight, but diverge slightly to the prominent front angles. The elytra are $2\frac{1}{2}$ times as long as the prothorax from base to front angles, and coarsely pitted in regular longitudinal rows. The basal margin is concave, in correspondence with the rounded base of the pronotum, and the shoulders form slightly hooked prominences fitting into an emargination of each hind angle of the thorax.

39. Nematidium posticum Pasc.

Journ. of Ent., Vol. ii, p. 133, 1863.

Upolu I.: Apia, May, Jan.; Vailima, Jan.; Tafua Volcano (Swale).
Tutuila I.: Pago Pago, Dec.
This has only previously been recorded from Borneo.

40. Pycnomerus nitidicollis Reitt.

Penthelispa nitidicollis Reitt., *Stett. Ent. Zeit.*, Vol. xxxviii, p. 350, 1877.

Upolu I.: Apia, Nov.; Malololelei, April.
Ceylon.

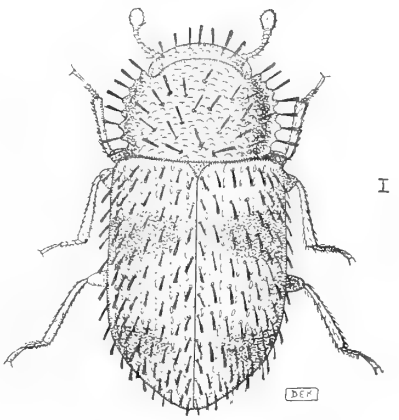
Four specimens were found. It is not impossible that these belong to another very closely related species, but a longer series is necessary to determine whether this is so, or whether *P. nitidicollis*, only previously recorded from Ceylon, is a widely distributed and somewhat variable form.

41. Hystricones vagans, sp. n. (Text-fig. 6).

Rufo-brunneus, singulo elytro macula transversa nigra antemediana aliaque anteapicali ornato, antennis pedibusque rufis, corpore spinis haud brevibus pallidis ubique irregulariter hispido, oblongo-ovalis, modice latus, pronoto brevi, scabroso, lateribus deplanatis, grosse serratis, leviter arcuatis, angulis haud acutis, margine antico late lobato, elytris sat crebre seriato-punctatis, quam latitudinem vix parte tertia longioribus, lateribus fere parallelis.

Long. 2 mm.; lat. max. 1 mm.

Upolu I.: Vailima, 600 ft., Oct.



TEXT-FIG. 6.—*Hystricones vagans*, sp. nov.

Two specimens were found. The genus was formed for a single Central American species, and the occurrence of a second so widely separated from it is an interesting fact. Their close relationship cannot be doubted, for it extends not only to the almost identical character of the peculiar spines studding the surface, which are not pointed but truncate at the ends, but even to

the pattern of red and black. *H. vagans* is smaller than *H. armatus* Sharp, and rather more short and compact, with shorter legs, which are not spiny like those of the American species. The lateral margins of the pronotum are strongly serrate and fringed with spines, as in *H. armatus*, but not narrowed behind, and the elytra are shorter, more parallel-sided, rather less convex, and bear large, closely set punctures in longitudinal rows. The pattern of the elytra is similar to that of the typical species, but an anterior band is not traceable and the antemedian black spots are not united. Probably, however, the pattern is variable. The sides of the metasternum are strongly punctured and the 4th sternite is very short.

42. Ocholissa humeralis Fairm.

Rhizophagus humeralis Fairmaire, *Rev. et Mag. Zool.*, Vol. ii, p. 55, 1850.

Upolu I.: Apia, May; Malololelei, 2000 ft., June.

Tutuila I.: Fagasa, Leone Road (Swezey and Wilder), Sept., in rotten bark.

Tahiti (Fairmaire), Moluccas, Java, Borneo, Ceylon, Madagascar.

This widely distributed species was found in abundance.

43. Ocholissa vidua, sp. n.

Nigra, nitida, pedibus antennisque fusco-rufis; elongata, subcylindrica, capite et pronoto sat fortiter punctatis, oculis sat magnis; pronoto subquadrato, longitudine ad latitudinem aequali, lateribus fere rectis, retrorsum perpaulo convergentibus, marginibus antico et postico etiam fere rectis, angulis anticis rotundatis, posticis rectis, disco utrinque pone basin profunde impresso, elytris sat fortiter seriato-punctatis, modice convexis, basi fere recto, lateribus subparallelis, corpore subtus fortiter punctato, antennarum articulis tribus ultimis subaequalibus.

Long. 2–2·5 mm.; lat. max. 0·75 mm.

Upolu I.: Apia, May, Nov.; Malololelei, May, in rotten trees.

Tutuila I.: Leone Road, Sept., in rotten bark (Swezey and Wilder).

This appears most to resemble a South African species, *O. capensis*, Grouv., but it differs in having the terminal joint of the antenna shorter, the prothorax

less broad, etc. From *O. humeralis* and all other known species it differs in the colour being entirely black, except for the dark red legs and antennae. It may also be distinguished from *O. humeralis* by its rather less elongate shape, larger eyes, more quadrate prothorax, with nearly straight sides, only feebly converging behind, and less rounded front and hind margins, more convex and more strongly punctured elytra, with straighter basal margins, less exposed extremity of the abdomen and more strongly punctured lower surface.

44. Cerylon testaceum Fairm.

Rev. et Mag. Zool., Vol. ii, p. 53, 1850.

Upolu I. : Apia, April.

Tutuila I. : Pago Pago, Sept. (Swezey and Wilder).

Tahiti (Pradier).

Although Fairmaire's description is in some respects inadequate, it will in all probability be found that this is the insect recorded by him from Tahiti.

45. Philothermus, sp.

Tutuila I. : Pago Pago, Sept. (Swezey and Wilder).

A single specimen of an unidentified species.

CRYPTOPHAGIDAE.

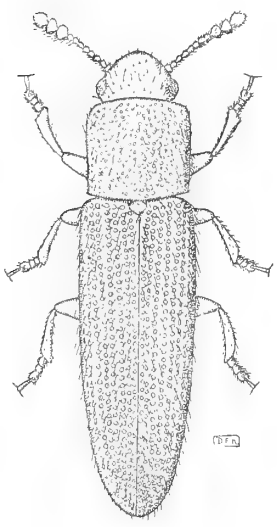
46. Hapalips samoensis, sp. n. (Text-fig. 7).

Testaceus, parum dense griseo-pubescens, parvus, angustus, sat planus, capite subtiliter punctato, oculis parvis, minute granulatis ; pronoto longitudine fere ad latitudinem aequali, minute sat crebre punctato, lateribus fere rectis atque parallelis, marginibus anticis et posticis leviter arcuatis ; elytris crebre sat minute seriato-punctatis ; prosterno metasternoque sat fortiter et aequaliter punctatis ; pedibus sat robustis, tibiis apice haud fortiter dilatatis ; antennis brevibus, articulis omnibus, ultimo excepto, transversis.

Long. 3 mm. ; lat. 0·75 mm.

Tutuila I. : Fagasa, Sept. (Swezey and Wilder).

Three specimens were taken from a Nutmeg tree. They show a close affinity to the Tropical American *H. filum*, Reitt. Like the latter, the present is a small pubescent species of narrow shape, with small eyes. The eyes of *H. samoensis*, however, are more finely facetted than those of *H. filum*, and the tibiae are much less dilated at the end. The punctures on the head and pronotum are finer and more numerous, and the latter is a little shorter, being scarcely as long as it is broad. The front and hind margins are gently and evenly rounded, and the lateral margins nearly straight. The antennae agree almost exactly with those of *H. filum*, except that they are a very little shorter.



TEXT-FIG. 7.—*Hapalips samoensis*, sp. nov.

The occurrence of this genus is interesting. Its numerous species are nearly all confined to Tropical America, but one has been found in New Zealand, one in Ceylon, one in Madagascar, and two in the Seychelles.

PHALACRIDAE.

Two specimens of an unknown species belonging to this family were found at Malololelei. The late Mr. G. C. Champion, who made a study of the family and examined these specimens, was not able to say whether they belong to any recognised genus.

EROTYLIDAE.

Monothallis, gen. nov.

This genus is formed for *Thallis samoensis* Heller, *T. perplexa* Blackb. (Queensland), and *T. xanthosticta* Crotch (Gilolo, etc.), which differ from all other EROTYLIDAE known to me in the character of their stridulating apparatus. I have already referred to this in a recent paper dealing with the subject of stridulation (*Trans. Ent. Soc. Lond.*, p. 135, 1924), in which the structure is

figured. It consists of a narrow longitudinal elevation upon the posterior part of the head, lying partly within the cavity of the prothorax. This ridge is divided transversely into a large number of microscopic ridges, which by in-and-out movements of the head scrape a sharp corresponding ridge inside the cavity and so set up vibrations, no doubt of a more or less musical character, although in so small an insect they may not be easily audible to the human ear.

I have described an apparatus essentially similar in other genera of EROTYLIDAE, but in all of these there are two files, one on each side of the head. Usually they are rather widely separated. In the typical species of the genus *Thallis* (*T. compta* and *T. vinula* of Erichson) the apparatus is absent. In a third species, *T. janthina*, associated with them by Erichson, two converging but well separated files are present, and in *T. insueta* Crotch, the two files are close together. These and other species allied to them will no doubt ultimately be formed into new genera.

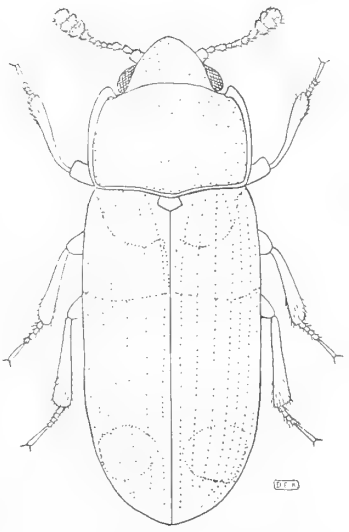
47. Monothallis samoensis Heller (Text-fig. 8).

Thallis samoensis, Heller, *Arch. f. Naturg.*, Vol. lxxxiv, 1918, p. 61, 1920.

Upolu I.: Apia, Oct.; Mulifanua, Nov.

Fiji Is. (Jepson), Loyalty Is., New Hebrides (Aneityum).

This is an abundant insect, which lives and feeds upon woody tree-fungi, specimens having been bred out of one of these in the Botanical Department of the British Museum so long ago as 1859. According to Dr. Heller, it is found also in New Pomerania in the Bismarck Archipelago.



TEXT-FIG. 8.—*Monothallis samoensis* Heller.

48. Euxestus basalis Motsch.

Tritomidea basalis Motsch., *Etudes Ent.*, Vol. viii, p. 106, 1859.

Upolu I.: Apia, Dec. to Feb.

Tutuila I.: Pago Pago, Sept. (Swezey and Wilder).

Hawaiian Is., Malay Archipelago, Burma, Ceylon, N. Queensland, Seychelles Is., W. Indies, Central America.

A minute insect, which probably occurs everywhere near tropical seacoasts. It was found beneath the leaf-bases of Coco-de-mer (*Lodoicea*) in the Seychelles by Dr. H. Scott, and has been imported into France in cargoes of Ground-nuts (*Arachis*) from West Africa.

In my lately-published volume in the *Fauna of British India* (Erotylidae, etc., 1925, p. 150) I referred to this species as *Euxestus parki* Woll., but, after a re-examination of the type, which is unfortunately in very bad condition, I have formed the opinion that that name most probably belongs to the closely similar species called by me in the same volume *E. translucidus*.

49. Eidoreus minutus Shp.

Trans. R. Dublin Soc. (2), Vol. iii, p. 146, 1885.

Upolu I.: Apia, Sept. (Swezey and Wilder).

Hawaiian Is., Seychelles Is.

Three examples of this very tiny insect were taken from amongst Bermuda grass. It was originally discovered in the Hawaiian Is., and afterwards found in the nests of an ant (*Pheidole punctulata*) in the Seychelles. In recording it from the latter locality in *Ann. Mag. Nat. Hist.* (9), Vol. x, p. 77, 1922, I expressed the opinion that it would prove to be of wide occurrence. Its extremely extensive distribution is now evident.

ENDOMYCHIDAE.

50. Trochoideus desjardinsi Guér.

Rev. Zool., 1838, p. 22, 1838.

Upolu I.: Apia, Jan.

Fiji Is.; Malay Archipelago, Burma, India, Ceylon, Mauritius, Madagascar, Seychelles Is.

A single specimen was found in Samoa. The insect is a very strange but common one, which has been found in the nests of both Ants and Termites.

COCCINELLIDAE.

51. Neda tricolor, F.

Coccinella tricolor F., *Mant. Ins.*, p. 59, 1787 ; *Archaioneda tricolor* Crotch, *Rev. Coccin.*, p. 169, 1874.

Tonga Is. : Nukualofa, Feb., Mar. ; Tongatabu (J. J. Lister).

This is the typical three-coloured phase of the species, which is apparently absent in Samoa.

N. tricolor, var.

Upolu I. : Apia, July, Aug. (Armstrong).

Savaii I. : Safune, May (Bryan).

The red patches are absent from the elytra in this phase, which is therefore not tricolorous.

N. tricolor, var. *fijiensis* Crotch, *l.c.*

Tutuila I., June (Kellers).

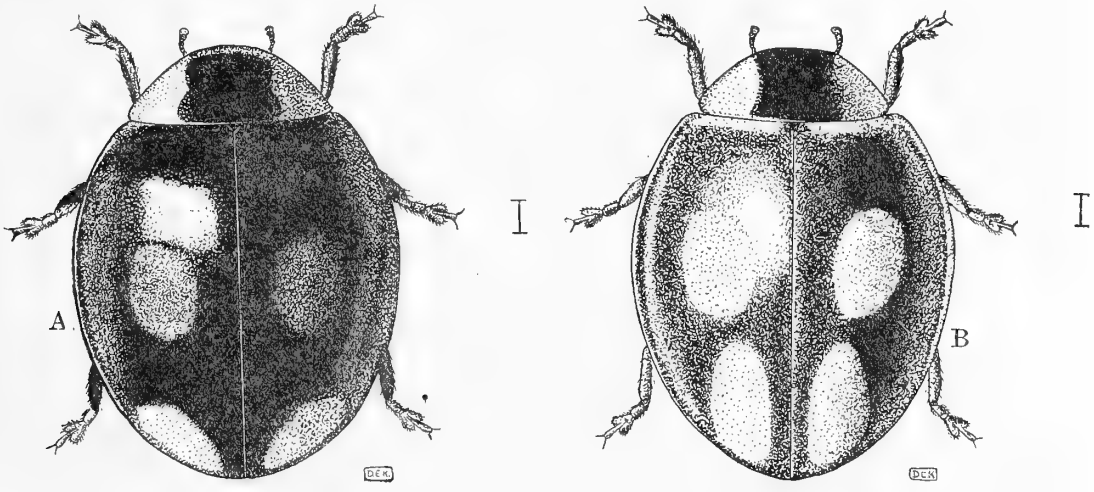
Manua Group : Tau, Feb. (Judd).

Fiji Is.

In this variety the black markings also are absent from the elytra, with the exception of a narrow sutural border.

52. Chilomenes samoensis, sp. n. (Text-fig. 9, A. and B.).

Niger, nitidus, capite, pronoti lateribus late margineque antico angusto pallide flavis, elytrorumque macula mediana sanguinea et altera subapicali



TEXT-FIG. 9.—A, *Chilomenes samoensis*, sp. nov. ; B, *C. samoensis* var. *tutuilensis*, var. nov.

flava : late ovalis, sat crebre et minute punctulatus, elytrorum epipleuris vix ad metasterni partem quartum latitudine attingentibus, femoribus ad margines attingentibus, metasterno antice haud anguste lobato.

Long. 3·5–4·5 mm. ; lat. max. 3–3·5 mm.

Upolu I. : Apia, Dec., Mar. ; Malololelei, 2000 ft., Mar., June ; Mulifanua, July (Wilder).

C. samoensis, var. *tutuilensis*, nov.

Fusco-brunneus, pronoti medio nigro, lateribus elytrorumque maculis et margine angusto externo flavis.

Tutuila I., 1000–1200 ft., July, Oct. (Kellers).

This very distinctively decorated species appears to me to be best placed in the genus *Chilomenes*, from the shortness of its antennae, the absence of hollows beneath the front angles of the pronotum, etc. It is a small species of broadly oval shape, with only slightly dilated lateral margins to the elytra, the femora just reaching the outer edge. The ground colour is black, with the head pale yellow, broad lateral margins of the same colour to the pronotum, joined by a narrow line along the front margin, the elytra decorated with a blood-red nearly round spot on each in the median line and not far from the suture, and a pale yellow spot, of similar size but usually rather more oval shape, in the apical angle.

The variety *tutuilensis* I at first supposed to be merely an immature condition, but as the examples were found both in July and October and no representative of the typical form was encountered upon the island of Tutuila, I have little doubt that it is really a local race. The pale sides of the thorax are not united along the front margin, the elytra are not black but chocolate-brown, with a paler basal and external border, and the spots are all of the same yellow colour and oval in shape, larger than in the type form and approaching each other rather closely.

53. Coelophora inaequalis F.

Coccinella inaequalis, F., *Syst. Ent.*, p. 80, 1775.

Upolu I. : Apia, Feb. to May, Aug., Sept., Oct. ; Malololelei, 2000 ft., Apr., June, July, Nov. ; Falelatai, June ; Mulifanua, Nov. ; Leulumoega, Sept. (Swezey and Wilder).

Savaii I.: Fagamalo, Aug., Nov.; Safune, 1000–2000 ft., May (Bryan).

Tutuila I.: Pago Pago; Amauli; Leone Road, Sept. (Swezey and Wilder).

The species ranges from Hongkong and the Malay Peninsula to North Australia and the Hawaiian Is.

54. Coccinella transversalis F.

Spec. Ins., Vol. i, p. 97, 1781.

Upolu I.: Apia, Feb., Sept. (Swezey and Wilder); Aleipata, Lalomanu, Apr., May, Nov.

Savaii I.: Fagamalo, Feb.

Tutuila I.: Pago Pago; Amauli, Sept. (Swezey and Wilder).

Tonga Is.: Nukualofa, Feb.; Neiafu, Vavau, March.

Ellice Is.: Funafuti, Sept.

This was taken feeding upon Aphidae on Cucurbitaceous plants. The species ranges from India and China to Australia.

55. Epilachna 28-punctata F.

Coccinella 28-punctata F., *Syst. Ent.*, p. 84, 1775

Upolu I.: Apia, Feb., May, Sept., Oct., Dec.; Malololelei, 2000 ft., Feb., Apr., Oct. (Armstrong); Aleipata, Lalomanu, Nov.; Falelatai, June.

Savaii I.: Safune, April (Bryan); Salailua, May (Bryan).

Tutuila I.: Leone Road; Amauli, Sept. (Swezey and Wilder); 760–1200 ft., Apr., Aug., Dec. (Kellers).

Tonga Is.: Nukualofa, Feb.

This phytophagous Coccinellid has an even wider range than the two foregoing species.

DERMESTIDAE.

56. Dermestes vulpinus F.

Spec. Ins., Vol. i, p. 64, 1781.

Upolu I.: Apia, June.

A single specimen was found of this insect, which is abundant throughout the world, infesting bones and other dried animal substances.

57. Orphinus terminalis Sharp.

Cryptorrhopalum terminale Sharp, *Trans. R. Dublin Soc.* (2), Vol. iii, p. 150, 1885.
Orphinus terminalis Arrow, *Ann. Mag. Nat. Hist.* (8), Vol. xv, p. 438, 1915.

Upolu I. : Apia, Sept. (Swezey and Wilder).

Hawaiian Is.

A single example occurred at Apia. The species was only known previously as Hawaiian.

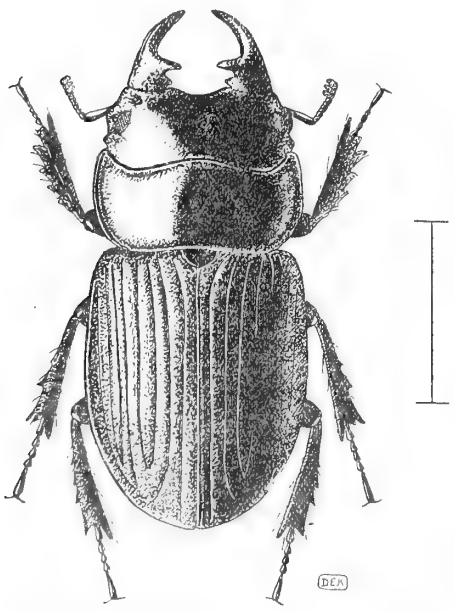
LAMELLICORNIA.

LUCANIDAE.

58. Aegus upoluensis, nom. nov. (Text-fig. 10).

Alcimus dilatatus, Wat., *Trans. Ent. Soc. Lond.*, 1875, p. 163, 1875 ; Boil., *op. cit.*, 1913, p. 258, pl. 9, fig. 3, 1913.

The name *Alcimus dilatatus* belongs to an insect from Wallis Island, described and figured by Fairmaire, and I have given a new name to the Samoan species described by Waterhouse and figured by Boileau under the same name. Fairmaire's type is a single female which has been assumed, as I believe, without sufficient reason, to belong to the Samoan species. I have not been able to discover in *Aegus upoluensis* even the features mentioned by Fairmaire as distinguishing his genus *Alcimus*. The female of the present species does not correspond in shape with Fairmaire's figure, nor is the elytral striation or the puncturation of the metasternum as described by him. *A. upoluensis* is most sharply distinguished from the two allied species which here follow by the occurrence of two teeth, an upper and a lower one, at the base of the mandible of the male.



Text-fig. 10.—*Aegus upoluensis*, nom. nov.

Upolu I. : Apia, June, Sept., 1918 (Swale) ; Lotopa, Mar., 1917 (Swale).

59. Aegus swalei, sp. n. (Text-fig. 11).

Niger, nitidus, ovalis, paulo convexus, capite ad oculos lato, elytris brevibus, parallelis, prosterno inter coxas constricto, postice paulo carinato, metasterno antice vix producto :

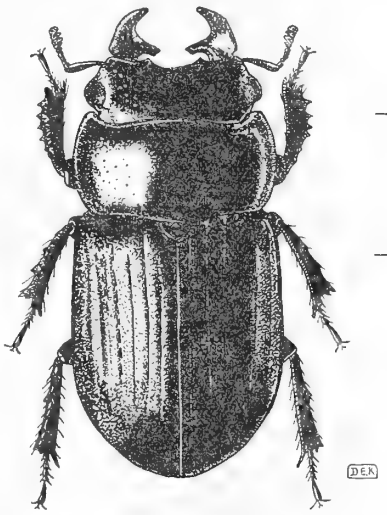
♂, capite post oculos haud dentato, mandibulis planatis, apice recurvatis, basi dente inferiori apice truncato munito, elytris brevibus, haud profunde striatis :

♀, capite et pronoto ubique fortiter punctatis, hoc medio leviter sulcato, elytris fortiter striatis, striis haud punctatis, intervallis vix punctatis.

Long. (sine mandibulis) : ♂ 17 mm., ♀ 11 mm.

Lat. max. ♂ 9 mm., ♀ 11 mm.

Upolu I. : Apia, June to Sept. (Swale).



Text-fig. 11.—*Aegus swalei*, sp. nov.

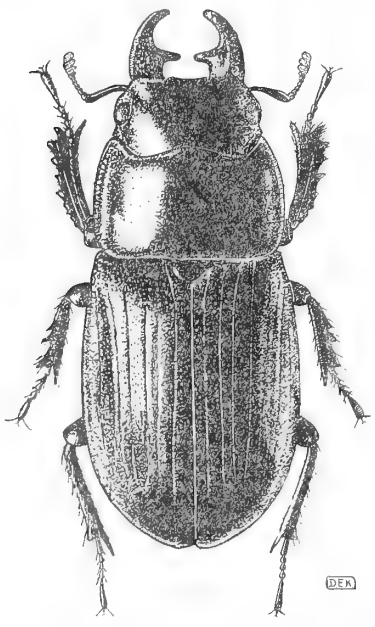
A specimen of each sex was taken by Dr. Swale. Although agreeing with *A. upoluensis* in its rather oval outline and convex form, as well as in the broadly rounded hind angles of the thorax and parallel-sided elytra, it has many well-marked points of difference. The mandibles are flattened and curve strongly upwards, and, instead of an upper and lower tooth, one above the other, near the base, have a single strong blunt lobe at the same point ; the ocular lobe forms a strong projection on each side of the head ; the front angles of the thorax are scarcely produced, the elytra are still shorter, only very lightly striate, the first stria breaking up into irregular points and the 5th and 7th only feebly indicated, the interstices are very finely and closely punctured (a little more strongly, but still finely, at the sides and apices), the prosternum is narrowed between the coxae and rather carinate behind them and strongly punctured. The middle legs are closer together, the metasternum scarcely produced between them, the sides less strongly punctured, the punctures not linear in shape and not extending to the base. The round depression at the middle of the base is not well defined. The front tibiae are broader and bear stouter external teeth.

The male (type) specimen is no doubt a small representative of the species,

since the female, which is undoubtedly conspecific with it, having all the above differential characters except those of the mandible, is considerably larger. In it the mandible has a sharp tooth near the middle, the head is strongly and subrugosely punctured, with a deep transverse impression on each side in front of the eye, the pronotum is strongly but not densely punctured, with a very narrow smooth median line bordered by larger punctures, and the elytra are very deeply striate, with the intervals still more lightly punctured than in the male.

60 Aegus tutuilensis, sp. n. (Text-fig. 12).

Niger, nitidus, ovalis, paulo convexus, capite parum lato, elytris parallelis, apice paulo productis, processu prosternali haud carinato, metasterno antice perspicue attenuato :



TEXT-FIG. 12.—*Aegus tutuilensis*, sp. nov.

♂, capite post oculos utrinque minute dentato, mandibulis planatis, basi dente subacuto inferiori munito, elytris profunde striatis.

Long. (mandibulis inclusis) : 22·5 mm. (mandibulis exclusis) 19 mm.

Lat. max. 9–9·5 mm.

Tutuila, Dec. (Kellers) ; July (Swezey and Wilder).

Three males of similar development were taken. This species closely resembles *A. upoluensis* in its general appearance, size, form and sculpture, but differs in the absence of the upper tooth from the mandible of the male and the greater development of the lower tooth, which is rather sharp. The anterior half of the mandible is not attenuate, and the tip is very blunt. The front and middle coxae are the same distance apart as in *A. upoluensis*, and the metasternum has the same form and sculpture.

The female is unknown, and it is probable that the male reaches a higher degree of development than is represented by the three specimens found.

61. Figulus auritus, sp. n. (Text-fig. 13).

Piceus, laevissimus, nitidus, leviter pruinosus, modice elongatus, capite laevi, utrinque tri-tuberculato, lateribus angulatis, angulis antice productis: pronoto lato, lateribus antrorsum convergentibus, angulis anticis sulco lato laevi marginatis, disco antice medio minute dentato, postice longitudinaliter sulcato, elytris fortiter punctato-striatis, intervallis vix convexis.

TEXT-FIG. 13.—*Figulus auritus.*

Long. (mandibulis inclusis) 14–17 mm.

Lat. max. 5·5–6·5 mm.

Upolu: Apia. June to Sept. (Swale).

Four specimens were taken by Dr. Swale. As usual in this genus, no external sexual difference is visible.

F. auritus is nearly related to *F. foveicollis*, Boisd., which inhabits the Fiji Is., but has numerous points of difference. The specimens taken by Dr. Swale are deep reddish-black (but nowhere quite black) in colour, with a slight iridescent bloom on the upper surface, which is extremely glossy. The head is very smooth, with only extremely minute scanty punctures. On each side there are three tubercles forming a triangle, the outermost formed by the inner eye-wall, the second in line with the last and the third level with the front edge of the eye. The ocular lobes are angular, as in *F. foveicollis*, but, instead of being produced outwards, as in that species, they are produced forwards, the outer margin being almost straight, but rounded behind the eye and not angular there, as in *F. foveicollis*. The pronotum is very short and broad, with the widest part near the base, whence the sides converge forwards. The front angles form blunt lobes with a broadly hollowed margin. The marginal groove is much broader than in *F. foveicollis* and almost smooth, only a few minute punctures being traceable in its inner portion. There is a minute sharp tooth just behind the front margin in the middle and a median groove upon the posterior part, scarcely reaching the base and containing a few small punctures. The remaining surface of the pronotum is smooth, except for a few minute punctures at the sides. The elytra are decidedly narrower than the pronotum

and not very long. They are not quite so deeply striate as those of *F. foveicollis*, and the intervals are a little broader and flatter. The apical angles are closely punctured. The prosternal process has a flattened margin surrounding a rounded boss, and the metasternum is less strongly and closely punctured at the sides than that of the Fijian species.

61A. Figulus fissicollis Fairm.

Revue et Mag. Zool., Vol. i, p. 414, 1849.

Tonga Is.: Vavau, Neiafu, March.
Four specimens were collected.

61B. Figulus foveicollis Boisd.

Platycerus foveicollis Boisd., *Voyage de l'Astrolabe*, Coleopt., p. 239, 1832.

Tonga Is.: Vavau, Neiafu, March.
One specimen was taken together with those of the preceding species.

SCARABAEIDAE.

APHODIINAE.

62. Aphodius lividus Oliv.

Scarabaeus lividus, Oliv., *Entom.*, Vol. i, pt. 3, p. 86, 1789.

Upolu I.: Malololelei, 2000 ft., June, Nov.; Apia, Sept. (Swezey and Wilder).
Savaii I., Aug.
Tonga Is.: Nukualofa, Feb.
This is an extremely abundant insect, of worldwide distribution.

63. Ataenius orbicularis Schm.

Denkschr. K. Akad. Wiss. Wien, Vol. lxxxix, p. 697, 1914; *Das Tierreich, Aphodiinae*, p. 433; 1922.

Upolu I.: Apia, May, Nov.
Hawaiian Is.

West Indies: Grenada.

Central America.

Although formerly supposed to be a species peculiar to Samoa, this was afterwards found by Schmidt to have been previously known from Central America but confused with *A. liogaster* Bates.

64. Trichiorrhyssemus hirsutus Clouet.

Mem. Soc. Ent. Belg., Vol. viii, p. 28, 1901.

Upolu I.: Apia, Mar., Aug., Nov.

Tutuila I.: Pago Pago, April (Kellers).

Savaii I.: Fagamalo, Nov.

Celebes, Philippine Is., Malay Peninsula, Christmas I., Chusan Archipelago, Ceylon, S. India.

Hybosorinae.

65. Phaeochrous emarginatus Cast.

Hist. Nat., Vol. ii, p. 109, 1840.

According to Schmidt (*Arch. f. Nat.*, 88, 10, p. 158, 1922), three specimens were taken by Dr. Friederichs in Upolu. I have seen no Samoan examples, but the insect is extremely abundant and ranges from the Malay Peninsula to Australia.

Rutelinae.

66. Adoretus versutus Har.

Coleopt. Hefte, Vol. v, p. 124, 1869.

Upolu I.: Apia, Jan., Apr., May, June, July; Malololelei, 2000 ft., Nov.

Tonga Is.: Nukualofa, Feb.; Vavau, Neiafu, Mar.

Fiji Is., Java, Seychelles Is., Mauritius, Ceylon, India.

The damage to crops in Samoa caused by this beetle is the subject of a special report by Friederichs (*Zeits. Wiss. Insectenbiol.*, Berlin, Vol. x, 2, pp. 41–47, 1914). It is a pest of Cacao and many other crops.

Dynastinae.

67. Oryctes rhinoceros L.

Scarabaeus rhinoceros L., *Syst. Nat.*, p. 346, 1758.

Upolu I.: Apia, March, May.

Tutuila I., Dec. (Kellers).

Celebes, Ceram, Amboyna, Sumatra, Java, Malay Peninsula, Philippine Is., China, Siam, India, Ceylon.

This is the well-known Black Coconut-beetle or Rhinoceros Beetle, one of the two common pests of the Coconut-Palm throughout the East. The insects tunnel into the soft wood at the growing point of the tree, and are said to deposit their eggs there. The larvae feed upon any decomposing vegetable matter.

Cetoniinae.

68. Oxycetonia versicolor F.

Cetonia versicolor, F., *Syst. Ent.*, p. 51, 1775.

Upolu I.: Apia, Feb., Mar., May, Oct., Dec.

India, Ceylon, Mauritius, Madagascar.

The curious distribution of this insect evidently indicates its introduction from India or Ceylon in fairly recent times.

LIST OF TEXT-FIGURES

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INSECTS OF SAMOA
AND OTHER SAMOAN TERRESTRIAL ARTHROPODA

PROPOSED ARRANGEMENT :—

Part I. Orthoptera and Dermaptera.
„ II. Hemiptera.
„ III. Lepidoptera.
„ IV. Coleoptera.
„ V. Hymenoptera.
„ VI. Diptera.
„ VII. Other Orders of Insects.
„ VIII. Terrestrial Arthropoda other than Insects.

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